rowser rouser

arket leader Netscape sees dicrosoft in rearview mirror

Kim S. Nash and Gary H. Anthes

Netscape's plea for Department of Justice backup in its browser war against Microsoft could mean Netscape is running scared, some users and ana-

Indeed, Netscape Comp are reason to be concerned. An exclusive survey of information systems professionals by Computerworld, Inc.'s research

division found that Microsoft Corp. is quickly gaining browser ground on its rival. Twelve percent of respondents said Microsoff's

Windows 95 may be just a passing fancy

By April Jacobs and Laura DiDio

On its first anniversary, the most hyped operating system in history has made itself a household name But it's having a harder time convincing corporate America that it's a

Windows 95 is no slouch; Microsoft Corp. is expected to ship 45.7 million units this year. But analysts have recently downgraded their sales projections in the of Micro-soft's message that Windows 95 is a pit stop on the way to Windows NT. NT 4.0 is shipping now.

"Some of these come coming back and saying. It's a stone I'don't need to step on," " said Chris



Le Tocq, director of software research at Dataquest, a market research firm in San Jose, Calif.

Rmon phenomenon: Sales up, usage isn't Br Patrick Dryden

Few users seem to pet full value from the Remote Monitor ing tools they demand in their internetworking products. Many administrators, fearful of performance problems or lacking Rmon experts on staff, never even try the Rmon agent software or modules embedded in their

fuls, switches and ros Others, caught on the treadmill of reactive management, rely on

non in those devices only for trouble "About 95% of organizations don't use all the network management they've bought inside these devices because they still spend all their time putting out fires," said Michael Howard,

president of Infonetics Research, Inc. in San Jose, Calif.

WHAT'S INSIDE

of seven systems management products at CA-Would '96 in New Orleans this week. See story, page 6, by Bob Francis.

SAP AG will show users in Philadelphia this week how it plans to split its R/s enterprise See story, page 8, by lulid

heats up. See In D





NT workstations nip at Unix heels By Jaikumar Vijayan

First came the personal computer. Now comes the personal work-

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binger of a new class of computers, Hewlett-Packard Co. This week will announce powerful Windows

NT workstations based on Intel

Corp.'s 180- and 200-8 The systems target eng onal animation and scientific applications markets and pack enough

respower to give some low-end Unix boxes a run for their money. There's been this myth kicked ound the industry that the only

real workstations are Unix work stations. That's about to be chal-lenged," said James Garden, an NT workstations, page 115

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PUNK ROCKERS. LOUNGE LIZARDS. STREET CREATURES. For HBO, this is the stuff great Web

sites and careers are made of. SEE CARFERS, PAGE 92



Browser rouser Market leader Netscape sees

Microsoft in rearview mirror In how Saltered Care II Justice

Netscape's plea for 18 partia et et lieste e bis large in its browser war against Macrosoff confel incom Velscare is mining scarol, some users and ana

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Windows 95 may be just a passing fancy

Dr. Spel Lands and Lama DiDio

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Windows 95's formance report card



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Rmon phenomenon: Sales up, usage isn't

Browser rouser, page for

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Monitoring Knot in these devices out, for trouble "About 16 - of organizations don't use all the retwork print pretient they've bought insule these devices because they still spend all their time putting out the s." said Michael Howard. president of Interestics Research Inc. of San Jose, Calif.

See in Depth





NT workstations nip at Unix heels De Linkmonn Vingerin In what analysis ties as the for Curn's 18th and the Mile Posterio. beneve at a new class of commuters first care the personal competer. Blooker Park and for the break The systems taged angineering

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Starting price Around \$1 000

miduals of CA Winted for in have Oners the word See story, page 6. by Sob-France

AP Afrienti shopr users'un See story, page 8 the links





Ready, set, 'net

Internet frenzy at a fever pitch, my brother is ous to join the millions who surf the 'net and Email themselves silly. So Garry was delighted when a guy at his church offered to sell him a \$100 PC - an latel 286. "What do I need to fix this thing up to surf the 'net?' be asked. A miracle, unfortu-

Garry manages a carpet store in upstate New York, and like silions of other folks, he doesn't need Windows 95 or fancy apcations. He just wants to cruise and achmoore online. I thought of Garry when I entered a morn full of actwork com-

sters and 'net appliances at last week's SCO Forum, an annual othering of Unix (sightful in Santa Cruz, Calif. Among the 14 products on display was "On TV Con

mer Internet Service" from ViewCall America in Norcross, Ga. Gafott viewcallamerica.com). The service offers Web browsing and E-mail capabili ties via your TV for a coetime cost of about \$300, plus a monthly fee to a 'net service provider. Such a thing would have seemed peculiar last year, but what a difference 12 months has made. Last mer, the industry was in a tiggy over Windows 95 (see our story, page 1).

All those nightmures of Microsoft domination seem like no more than a touch of indigestion now. There was little anget among the 3,000 Unix vendors, resellers and IS managers in Santa Cruz last week. They were serene in the knowledge that their bets have long been placed on the open standards and protocols underlying the 'net. Those standards, with the addition of Sun's Java programming language and its write-once-run-on-many-plat-forms canabilities, will make the network computer a viable and economically compelling choice for many firms.

The Internet is the biggest open system in the world," said SCO President Door Michels, 'and the network computer will carry the internet to the desktop and into the living room." I know how I'll judge whether Michels has it right or not When Garry fires off that first E-mail message from the comfort

of his own couch.

Morriega Johnson, Executive editor

Internet: meryfran johnwallen.com



BUT THIS IS ONLY A 4MB SYSTEM!

Fax tool kills the messenger

By Strwart Deck

Oten Port Technology will deliv

er a product this week that climinates one of the least high-tech processes in offices today hand-delivering faxes Open Port AFD, an automi

for distributor is simed at businesses that have a lot of incoming faxes that need to be processed

Open Port AFD electronically distributes texes to individual data-entry queues where individunis process them in a first-in. first-out order. This eliminates the 'sneakernet" method of manual fax delivery. Pricing for the syswest has signed up to use Open Port AFD to help handle the 30,000 to 40,000 pages of faxed credit and loss applications it re-

eakernet' no more According to the firm's vice president of administrative systems, the institution wanted to eliminate paper and the firm's exhausti "Nike network" of messengers who ran back and forth betw fax machines and the data-entry center. The runners sometimes delivered and lost faxes or lin-

Especially attractive to the com pany is a feature that uses a split screen to place an image of the fax next to the data-entry form The fax image slowly scrolls by at

This (product) is a big step forward in fix technology, and the scrolling feature is the importan key to this application," said Peter Davidson, a fax industry analyst at Davidson Consulting in Bur-

book Calif "A lot of comp exted in automating the fax recriving process," Davidson said. "Until now, all of the pieces weren't in one place to do it."

evered too long around the water-News Shorts

Oracle8 goes into beta · Dell preps servers Four years after starting development of a version of its database that blends relational and object technologies, Oracle Corp. is

now finally starting beta-test Oracle® But 3 scorers said the software

isn't expected to ship until the first half of next year. Oracle officials were mum about delivery plans. Oracle8 is accompanied by an object-oriented development environment code-named Sedona

WAN tool kit ships StreetBrook Software Inc. in

Bohemia, N.Y., this week plans to ship a suite of wide-grea network agreement tooks that run on a 22-bit Windows nietform Intra-Net Manager can discover, map and manage devices supported by Simple Network Management Protocol as well as frame-relay and Interrated Services Digital Network (ISDN) connections. It also collects and analyzes historical performance data it costs

Compaq cuts PC prices Compaq Computer Corp. in

Houston last week drooped the price of its commercial desiston systems by up to 22%. The price of its outgoing ProLinea 5100 dronned from \$1,849 to \$1,439. Older-model Deskpros also took a whack; the price of a 133-MHz intel Corp. Pentium-based system dropped from \$2,129 to \$1,799. The price of a 150-MH+ Penti system dropped from \$2,289 to \$7,029

Dell Computer Corp. in Austia, Texas, will introduce its first servers based on **Intel Corp.** Pentium Pro chips Sept. 9, sources close to the company said. The Power-Edge line will consist of entrylevel and midrange servers with single- and dual-processor capebilities, sources said. Quadprocessor systems will be an nounced later this year or early

formix targets Sybase In the kick-em-while down category, Informix Software, Inc. recently began to offer trade in credits to custo migrate from Sybase, Inc.'s SQL Server database to Informix' On-Line Dynamic Server, Informix is

also effering a migration tool kit and consolting services to try to pry customers away from Sybase. D&B adds Web tool

Atlanta is developing a Java-based applet that lets users of its Sn Stream bumas presumpres. system enter information change

employee records from their desktops using brow ers. D&B Software officials said the Web Series Employee applet is scheduled for beta testing later this year. General availability is slated for early next year.

Gateway aids ISDN First Virtual Corp. this week will unveil a gateway that lets a large

number of users share a few lategrated Services Digital Network

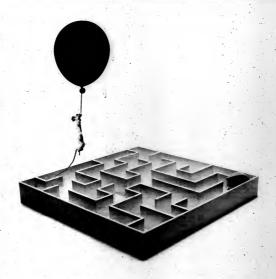
(ISDN) lines for deaktop vid conferencing. The V-Gate 3000 is a stateway between Asynchronous Transfer Mode (ATM) pipes and ISDN lines that basically remo the need to run expensive ISDN lines to each desktop. The gate-way costs \$12,000 for either 25Mbit ATM or Primary Rate Inter

IBM ships DB2 for SCO

IBM last week began to ship the sed version of its DB2 re lational database on SCO. Inc.'s OpenServer operating syr five-user license costs \$1,595; ad ditional licenses cost \$149 per user. IBM also said it will start beta shipments this month of an SCO version of its Net Data data access tool for World Wide Web browsers. Net.Data. which already supports OS/2, AIX and Windows NT, can also be used to Web-enable applications.

SHORT TAKES The American Stock Exchange has introduced the Amex Options Display Book, a fully automated electronic sys tem that was designed to replace the paper books used by options specialists... NetPro Comput-ing, Inc. is shipping Version 2.0 of Server ScanMaster for Banyas scans electronic-mail message attachments in Banyan Systems, Inc. networks. It costs \$899 per server. ... Bay Networks, Inc. last week announced a lifeti

warranty for its widely used Mod rla 800, 2700, 2800 and 2900 ar ries Token Ring, Ethernet and Fiber Distributed Data Interface hubs and its RayStack 10Rage-7 Ethernet Stackable Hubs.



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Aug. 26, 1996

News NEWS

Big Blue objects IBM's Java-based frames aims at business applications

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- and faster than ISDN
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Choice Cuts

PCLAN management suite offerings come together as the LAN

IS screstles with management monster. Buyer's Guide. page 81



Easy does it: You don't have to blay security cob to get users to keep data under lock and key A little nudging goes a long way. Managing, page 74

Technical Sections SERVERS & PCs

Review: High end at 133 MHz?

- ay and Co
- **Unix scales** DG, Unisys share multiprocessing technology

SOUTHWARE

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iement, goes on

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Ed

A		
tc.		
mpany index		- 11
torial/Letters	_	3
w to contact CW		

Developer/2000 Scores Highest in InfoWorld Product Comparison

The rigorous InfoWorld Product Comparison recently tested Oracle Developer/2000 and Microsoft Vistaal Basic to find which one "wouldn't crack under the pressure of scaling to the enterprise." After a battery of tests, InfoWorld concluded: "Our standout winner, Oracle Developer/2000..."



InfoWorld Product Comparison Score Enterprise Development Tools

InfoWorld on Scalability

InfoWorld on Team Development

InfoWorld on Database Programming

InfoWorld on Reusability

InfoWorld on Productivity

Oracle Developer/2000



"Developer/2000 performance... convinced us that it was prepared to scale..."

"Developer/2000 leads the pack in datarepository-based development."

"Developer/2000 is packed with tools that make it the strongest...

in transaction building."

"We were quite impressed with the wide range of object-reusability tools offered by Developer/2000."

"... Developer/2000 is packed... for productivity. Developer/2000's most notable tool... is its unique drag-anddrop application partitioning capability."

Microsoft Visual Basic



"...Visual Basic just didn't have... scalability."

"We feel this is an area where Visual Basic needs work."

"Visual Basic... transaction-building capabilities weren't ready for enterprisewide applications."

"...Visual Basic's object reusability features (are) inefficient and tedious.

"...Visual Basic... lacked the perks provided by Developer/2000:"

For more information and a copy of the report, call Oracle at 1-800-633-1071, ext. 10051 or find us on the Web at http://www.oracle.com

ORACLE®

IBM foggy on San Francisco ship dates

By Sharon Goudin

SANIOSE CALLE IBM is building a series of object frameworks to give developers a common base for developing dustry-specific applications.

The initiative, dubbed the San Francisco Project, was designed object-oriented applications in a distributed environment, ex-

plained John Slitz Jr., vice president of object technology marketing at the IBM Software Group. Slitz said the frameworks. which are being written in Java, are still in development, and

he couldn't say when they will Ready or not, it's good news ing down the object pike, said John Strand, director of technology planning and integration at Sprint Corp. in Overland

"At the business level, doing apcutions without having to deal with so much code directly would be useful," Strand said. "Any new way to enhance the development of object-oriented applications is

welcome. The sooner we get there, though, the better." IBM made the framework ansuscement here at Object World

A framework is a predefined architecture that contains a collection of several classes of objects A developer can take a framework for a certain-industry and simply add more specific objects to customine it.

The San Francisco Project would develop a standard base

compact of chiert from county outs a hit at Object World West

oss different industries. The frameworks are aimed at siness applications such as gen-

eral ledger, accounts payable and aventory control Karen Boucher, an analyst at The Standish Group Internation al. Inc. in Dennis, Mass., said the initiative could be important if it actually produces useful archi-

tectures. She pointed out that there are already frameworks for different vertical applications, but there isn't a standard for those

The hardest part of doing a work is how the damn thing is architected." Boucher said "How do you connect ever ything How do you set it up? This would make that newcess easier because they don't have to create the ar-Barry Christian, president of

International Business Systems

(IBS) in Folsom, Calif., said a ma-

city of time his people spend building object-oriented applica tions is focused on the nuts and bolts, which a standard frame work would alleviate. IBS builds husiness applications

We spend a lot of time writing the exact same pieces of code We'll take that code from this initiative and build on top of it the

elements that make us unique," said Christian, whose frm has been collaborating on the project with IRM and IBA International, an integrated

IBM is working on the intrintion with approximately 50 other software vendors. Sitz said he is opening the door to other col-

Stakes high for objects

nies including IBM, Netscape Communications Corp. and Sur Microsystems, Inc. arr betting heavily that object technology

will pick up speed. Sun and IBM announced at Object World West last week that they have joined forces to enable users to connect existing enterprise applica

tions to the Interpet and pri vate intranets "It's a world of multiple sys tems, and they've all got to tall to each other," said Steve Mills, general manager at IBM's Software Solutions divi

sion. "Prople don't want to worry about the plumbing They want to know they can IBM is licensing Sun's Joe.



Netscape's Marc Andreessen says content providers

s Java-based client connectiv ity product. Joe, which was ased earlier this year, was designed to let businesses de liver corporate applications

to any platform that supports the lava programming Sun will license class libr ies, including IBM's MQSeries messaging system, which

amone applications that run in IBM also is working on a version of its CICS transaction rocessing monitor for Sun's

laris operating system. And Netscape's co-founder, Marc Andreessen, threw his weight behind objects during a late-week keypote address in which he called object technology the next wave

to wash over the industry He also announced that Netscape had joined the Object Management Group, a standards orga-

"Instead of being con nt providers, people will be object developers. The object marketplace will start up pretty quickly. Andreessen said. "This is going to have a pretty dramatic change on the way people produce applications." - Sharen Gaudin

national, Inc. to the growing list of mpanies that believe Windows NT is a serious enterprise com-

At CA-World '96 this week in New Orleans, CA officials will an nounce Windows NT versions of seven systems m ment products, which will link to their mainframe counterparts, sources told

The new products (see box) will let users launch MVS or VMS systems management operations - such as storage management from Windows NT workstations or servers, or vice versa, the sources said. While some systems agement products let users



ge on different platforms. CA's sweeping array of products is broader than other offerings. The products are being betatested at some sites and will be available by year's end. CA officials declined to comment on unnced products.

The ability to use systems man agement tools from a variety of tforms allows for management of distributed applications. Sysns managers often must manronments by using different tools.

CA adds Windows NT support to Unicenter TNG company's CA-Unicenter. The Next Generation (TNG) are also ages for managing distributed a shot across the bow of the systems. But many users remain

recent IBM/Tivoli Systems, Inc. IRM has announced place to integrate its mainframe syst management products with Tivo-

Es distributed systems management environment, but that may not happen until later next war when CA begins to ship its new

"There's still alenty for both CA and IBM to do in terms of distributed management. This is probably a step in the right direction," said R. Paul Mason, an analyst at International Data Corp., a research group in Framingham

to see which can give users pack

skeptical. We can see we'll need so



sort of overall management covi ronment down the road, but right now, it's not something we need, said Michael Tardif, vice presideat of enterprise technology at Goldman, Sachs & Co. in

CA, in Islandia, N.Y., also will ice an Internet busi unit at CA-World '96. The unit will provide World Wide Web hosting and development services for

large corporations The unit also will focus on linking legacy applications and systems to Web-based applications. es said.

The Internet business unit will delve into a new area for CA: small-business. The traditionally enterprise-oriented company is veloping a system to support Web sites that link a comm of small businesses or organic tions, sources said.

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Transforming Enterprise Systems MICRO FOCUS

SAP opens up R/3

Users will be able to mix and match components . . .

By Julin King as demand planning and transpo

SAP AG's highly integrated R/3 prise software is disin ing, and many users couldn't be

As of December, the \$1.8 bills applications giant plans to sell R/3 as dozens of independent software components that users can mix and match with non-SAP software. The bonus is that most or the data integration for which R/3 is famous will remain intact, comnany officials said

SAP will announce R/3's new Rusiness Framework to U.S. users at its annual user conference this week in Philadelphia. The first products based on the design will ship in December as part of

Version 3.1 of R/3. SAP also will significantly exand the way users can access R/3. Under the new design's business application programming interfaces (BAPD, users will be able to reach the system via become software, Microsoft Corn's Exchange mail system or JetForm Corp.'s electronic forms software

BAPIs are SAP's new method for integrating third-party applications into R/3. SAP officials said the company will publish the specifications on its World Wide Web site in the loorth quarter. Several users applauded SAP's modular approach and its more open stance toward third-party software vendors. Those vendors

ously, users had to develop their com interferes between R/3 and legacy systems and other thirdnarty software

our SAP architecture. To the extent that SAP supports and codorses these (systems), it will make things less of a puzzle for in

R a readousk

Tony Scott, director of information management and shared services at Bristol-Myers Souibb Pharmacrutical Group in Prince-

Splitting R/3 into components also will let users enhance systems on a part-by part hasis rath er than replace an entire R/3 sys tem each time there is a release.

This is a good thing because, in many cases, you don't need to do a full-blown upgrade to get to the areas where you want more functionality," said Andy Hafer, an R/3 user at Hydro Agri North rice in Tampe, Fla

"SAP has obviously been listen ing to users halking that one size doesn't fit all," said Jack Maynard. an analyst at Aberdeeo Group, lac. in Boston.

The cons The downside could be greater systems complexity and higher "It will be more work to niero together, and it's not going to be

free. There will be additional costs," said one large R/3 user pested ano Still, the user added, his company would be willing to pay more for a contam that could more until ly meet its shifting requirements.

Meanwhile, dozens of thirdarty vendors eagur to ride the SAP wave are announcing R/3compatible products that will work with the new design.

Information Builders, Inc. in New York this week will announce a data warehouse nackage for R/3 users, Informix Software, Inc. will announce a business unit that works exclusively with SAP customers. Even Oracle Corp. a rival of SAP's on the client/server applications front - plans to announce a set of R/3 data ware-

bousing tools (see story at right)

The PC bottons all have cool and

... such as Oracle databases

Ry Crain Stademan

data into Oracle-based data ware-

troduced at SAP AG's Supphire user conference in Philadelphia,

provides a graphical user inter-

face into R/3's data repository.

The code needed to extract data

into a warehouse is automatically generated behind the scenes.

climinating the need to write cus-

tom programs using SAP's propri-

But there's a catch: Corpora

rectly available to end users.

We're just trying to walk before

we run here because it's a pretty

complex thing to build a data

warehouse," said Gail Ennis, se-

nior marketing director for world-

wide alliances at Oracle. "We want

to make sure that it's done con

Bub Washa, SAP R/3 technical

manager at Chevron Corp. in San

Francisco, said Oracle's tool kit

might reduce the need to use sne-

cialists to build data warehouses

But Oracle's reliance on inte

grators and consultants "is proba-

bly not the best partnership ar-

rangement," Washa said. "We'd

kind of like the tables to be turned

so that we not the tool kit and a

list of consultants who we could

cates that the tool kit "still needs

The limited distribution indi-

etary procedural langu

The tool kit, which is being in-

Oracle Corp. this week will an Currently, programmers "sit nounce a free tool kit aimed at there writing lines of code" to exmaking it easier to put SAP R/3

tract R/3 data for warehousing said William Bell, menaging di rector at Computer Sciences Corp.'s North American SAP consulting practice in Chicago, "Oracle's tools bypass all of that. You just select the items you want off Oracle is using SAP's tradition

al remote function call interfaces to R/3 but is evaluating SAP's new higher-level business applicati programming interface. Ennis



wouldn't say when the tool kit will ort that The tool kit, which is being built on top of Oracle's

Developer/2000 development software, will go into beta testing in October and is expected to be ready for shipment by year's end. It supports Oracle? databases.

Vendors such as Information

Competition

Informic Software, Inc., on

Builders, Inc., Cognes, Inc. and Rusiness Objects. Inc. are already shipping similar extraction and analysis tools that mask the complexity of R/3.

spid Bobby Cameron, an analyst st Forrester Research, Inc. in Cambridge, Mass. But Oracle's

dominant position in the database market is expected to give its tool kit obvious appeal to customers.

Apple in Epic battle for laptop sales plur in new 603E processors that that it might be too little, too late

By Lisa Picarille Attempting to regain its position

as a leader in the laptop market, Apple Computer, Inc. is expected to meet a new line of Power-Books in November

The Epic line is expected to help defuse post quality problems that caused Apple to recall some PowerBook models. The recall. coupled with a battery problem more than a year ago, has contributed to Apple's falling from fourth to ninth place in laptop sales, according to preliminary secondquarter 1996 figures from International Data Corp. a research firm in Framingham, Mass.

The Epic family will be based on the 600F PowerPC processor. The standard Epic will run at 117 MHs, but users will be sble to

run as fast so 167 MHz. Prices will range from \$2,500 to \$3,700 ed to include 12M or 16M bytes of RAM that can be easily

upgraded to 64M bytes, slowe with a 750ML or 1G-byte hard drive and a removable six-speed CD-ROM drive, according to

sources briefed by Apple. "These PowerBooks have been a long time coming, and I am wery excited," said Russ Chapman, technical services manager at the Boston office of Jack Morton Products, a promotional service firm "If you're a Mac site and you didn't want to move to s PC, it's been a real waiting stame. Any thing is better than nothing for

ting-edge stuff in them, and they The machines are also expect- are coming out more quickly." Apple was expecting to rebound from its Power-Book slump by teaming with IBM. The two companies appounded s deal several months ago whereby IBM was to release

an IRM-heanded ProveePC Think Pad notehook committee the Mar OS. That Mac-ThinkPad was slat ed to be delivered earlier this month at Macworld Expo in Boston But IRM mintly onted to obin that machine only is the language market and instead will take the wraps of (s trimmed-down 'Think Rook" at Comdex/Fall '96 in Noventler, according to sources briefed on IBM's plans Mac users. But the downside is

call if we needed help." some fine-tuning before it gets packaged up" for end users, said Clare Gillan, an analyst at Interna tional Data Corp. in Framingham, Nonetheless

Oracle tool kit should present a much friendlier face than what when they work

Gillan and oth will try to steal some of the analysts said the spotlight at Sapphire by an noutzing plans to surroun Windows KT-hased R/s an plications on its OnLine Dy numic Server by year's end Informia also is setting up on CAR oriented business directly development unit.

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Baby Bells call in new data pipe technology

As several Baby Bells push forward with ADSL trials, more vendors are racing to gaveil equipment that promises superfast data access for telecommuters and users in mote offices.

m Asymmetric Digital Subscriber Line ADSD trisis in San Ramon, Calif., and Redmond, Wash., respectively. Other regional Bell operating companies (RBOC) necession ADSI in other source by year's and "The real interest here is remote combranch offices using the Internet as a conduit for getting back to information at corporations," said Dan Merriman, director of remote communications at Giga Information Group in Cambridge, Mass. ADSL uses regular copper telephone

receive data at speeds of between 1.5M bit/sec. and 6M bit/sec. ADSL, which requires new modem technology, is 90 times faster than Integrated Services Digital Network (ISDN). The technology offers telecommuters connections at near-two

chronous speeds to make a burn

investment in fiber lines Gary Trout corporate development at Geor eia fratitute of

Technology in Atlanta, said he would welcome the 28.8K bits sec. modem he uses for tele

ng. While his existing modern fails to provide a detired "subsecond response." ADSL speeds would provide "instant gratifi cation," he said: "With a bigger data pipe, it would be better than I could imagine," he said. "Many people would want this capability at their house

Joshua Turiel, director of information services at Adlife Marketing and Commu nications in Norwood, Mass., is also following the progress of ADSL. Turiel said be would consider using ADSL to link several client locations to the firm's main office "I'd run some ADSL to other client loca

ins where it doesn't make sense to go to T1. and ISDN is too slow," he said.

Price cut expected
A limited number of ADSL products are
available at about \$4,000 per modem pair.

That price should drop to about \$500 by 1998, when a greater volume of products are expected to hit the consumer market backed by a commitment from the carriers. Analysts said ADSL development is ac-

celerating as RBOCs gear up to compete with the cable industry, which is targeting its modems for use with broadband cable Although 90% of U.S. homes are connect-

ed to cable networks, few businesses are. Also, cable technology was designed for one-way video traffic and requires multiple users to share bandwidth, which can affect speed. ADSL provides dedicated bandwidth for local access.

Gil Gordon, a consultant who specializes in telecommuting and virtual office issues at Gil Gordon Associates, Inc., said he is in terested in cable and ADSL technology, But Gordon said he is worried that carriers will market it poorly just as they did with ISDN, which was deployed on a limited scale and at widely varying prices.

"When you deploy a new technology .. you're deployed, or you're not," Gordon said. "The comprate customer who wants to set up 100 or 1,000 telecommuters with ISDN or ADSL wants to place the order and know they have it."



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Sybase beefs up 'net offerings

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World Wide Web server and tools

for developme intranet-based appli

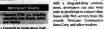
rations That lets SOI. Anrachers

offline

By Frank Hayes

Sybase, Inc. last week naveiled NetImpact Studio, the first entry in its family of development tools and services designed to help corrate users create World Wide Web-based applications.

The drag-and-drop tool set which will run under Microsof Corp.'s Windows 95 and Windows NT and enter beta testing later this year - was announced at Sybase's annual Powersoft user conference.



sa++, Visual B

said NetImpact Studio looked use ful for connecting Web sites to databases and applications. Right now, we have people who are just keying in the information for our Web page," said glas Joe, an analyst at the

com, Inc. in New York, "INet-Impact| could help us out by put-

ting program information up on the Internet directly." NetImpact Studio looks like a good growth path for PowerBuilder shops to move into," said Stethen Parmuseen a consultant at

Orkand Corp. in Atlanta. The new tool set is a visual dement system for connecting ons and components built with C++, Java, PowerBuilder and other development tools with Web-based applications, Along with a drag-and-drop environ-

tions Corp. and other vendors. Unifying products NetImpact Studio will eventually

be bundled with other Swhase products, and Sybase will roll out additional products under the NetImpact name later this year. The Emeryville, Calif-based firm hopes the Netlingact family of took will belo unify its product lines and divisions under a single brella, as it struggles against Developers at the conference Oracle Corp., Informix Corp. and other database vendors, said

acknowledged that Sybase has grown by acquisition too quickly to integrate new units such as Powersoft, Micro Decisionware MTV Networks division of Via-

IntraNetWare is still an IPX-

Tools link Web sites to databases, apps | Mobile workers can view intranet data while off the network

By Crair Stedman Right now, each application "is a monomental un-

Subase, loc. is modernizing its SQL Anywhere modertaking," Shepard said. An intranet also could carhie database with new tools that will let ren ry a wider variety of corporate information to make users browse portions of a corporate intranet while

ship workers "feel more a part of the fold," he added. "As a shipping company, our employees are very, Sobase last week announced plans to combine very remote The intranet replication capabilities should help lower mobile con-

Mobile computing nectivity costs because users have to be online only long enough for customers replicate parts of their intranets out to lapthe data to cross the wires, said Wayne Kernochan, tons used by mobile workers such as salespeople an analyst at Aberdeen Group, Inc. in Bosto However, bandwidth restrictions could pose a The employees can then browse through the intraroadblock for some users, according to Kernochan net and process transactions seainst their local data-

and other analysts. Security is also a potential issue, and companies have to create business rules haves even though they are disconnected from the to reduce the ever-present danger that off-line network. Changes are replicated back to the central more will work with data that ice?

The sequel The Web server and intrane tools bundled with SQL Anywhere Professional 5.5 are part of the new NetImpact development · Lotus and internet E-mail suite built by Sybase's Powersoft Corp. tools unit (see related story at left). The package, which also includes Powersoft's InfoMakes query and reporting tool, is due to ship within 60 days for \$499

SQL Anywhere competes wit Oracle Corp.'a low-end databases and Microsoft Corp's SQL Server software for Windows NT. But SQL Anywhere's small footprint of under 1M byte of memory gives it an advantage for mobile uses, said

Herb Edelstein, president of database consultancy Two Crows Corp. in Potomac, Md. As a workgroup database, SQL Anywhere is less



development at Cognitech Corp. in Atlanta. Cognitech, which sells SQL Anywhere-based sales force automation software, is betatesting Sybase's new Professional Stolt Parcel Tankers, Inc., a

Houston-based cargo shipper, expects to use SQL Apywhere to extend upcoming intranet applicatchell Kertaman, who became tions out to its ships as they sail Sebase's CEO in July Kertaman on the high seas. Stolt already uses the Subase

database in some shipboard applications. But the intranet approach should provide a standard infrastructure that will make it feasible to replicate much more data to the first said lim Stenard ship.

In theory, the intranet mate is

Nounit's to lose thanks to the row

pany's huge base of 55 million

years also said the intraset state

nesses have already turned to in-

tranet and Internet products from

Board of Medical Examiners in

For example the National

Novell finally throws its intranet party By Tim Quellette

based product. [Novell is! force-Novell. Inc's fashionably late en fitting NetWare into the intranet trance to the intranet gala last space," said John Oltsik, an anaweek may do little more than get users to turn their heads and take lyst at Forrester Research, loc. in Cambridge, Mass, "Novell needs to offer a native IP version of Neta look

out IntraNetWare, an intran oute board around NetWare 4.11. Novell's next network operating

system (see chart). Observers saw strengths and weaknesses in the suite. Intranets can be considered glorified LANs - an area that Novell dominates - but Novell lacks the mind share of Netscape Communica

The Provo, Utah, firm trotted

tions Corp. or Microsoft Corp. And NetWare is based on a dif ferent protocol - IPX - from the leteraet Protocol, which is used over the Internet and on intrancts.

What's included IntraNetWare buyers will get Nes-Ware 4.11. a World Wide Web

server and browser, an IPX-to-IP gateway and a multiprotocol router for network connections. Novell has promised development

The mite will ship next month multaneously with NetWare 4.11, code-named Green River. Novel will flesh out oricing and technical details at the NetWorld! laterop '96 conference to be held

Philadelphia, predominantly a NetWare shop, has turned else where for intrapet answers. "I will look at lithe NetWater Web Server] when NetWare 4.11

Netscape or Microsoft

ships," said Serve Lopez, network manager at the medical testing board. "But I have aiready madmy commitment" to Windows NT and related Web products, he said Novell wants users such as

NetWare users. But analysts and

Lopez to be sble to run Windows NT. NetWare and Unix Web serv ers in the same environment and manage everything with fewer utilities. So the company will port Novell Directory Services (NDS) to Windows NT by pext year

NDS on NT would allow me to manage the NT server and administer the rest of my NetWare environment from one place. That is a big strength," said Scott Kunzu. president of Certified Computer

rvices, Inc. in Cinci Although IntraNetWare is a catch-up product, *many Novell customers are still experimenting with intranets, and it is not too late to consider Novell," said Cinch Borovick, an analyst at International Data Corp. in Framingham.

Some users, after beta-testing NetWare Server 2.5, said they would consider Novell for intranets to get the benefits of the oneeton management conshibities

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Win 95 lands softly on desktops

On operating system's first-year anniversary, users say disruption of Win 95 has been minimal

By Boh Francis and Mindy Blodgett A year after fears that Windows 95 would wreak have on cornerate bud-

gets to upgrade desktop hardware, the erating system that caused all the us barely rates a shoulder shrug. We really haven't run into too many problems," said Robert Mayer, techni-

cal support manager at Case Corp., a retail chain based in Charlotte, N.C. "We haven't seen much impact on our hardware hove because at the same time the operating system came along, system prices continued to fall, particularly the price of memory."

Windows 95's hardware requir ents included a minimum of 8M bytes of RAM (16M bytes preferred), a Pentium processor and a recommended

856M-byte hard drive. A year ago, those requirements added several bundred dollars to system costs. But all three items have declined rapidly in price over the past year, allowing users to meet or exceed those re-

ests for the same price For instance, a 200-MHz Pontium system with SM bytes of RAM and a 1G-

byte disk drive is available for less than \$2,000. That is about what a 100-MHz Pentium system with 4M bytes of RAM and a 500M-byte hard drive used to cost A Computerworld survey shows that 34% of companies that moved to Windows 95 spent less than \$350



disk storage Vet Windows 95 has nevertheler

kicked off many changes on the standard desktop PC and laptop, analysts and users said. "We have undergone a monolithic change across desktops and laptops because of Win 95," said Ken Dulancy, an analyst at Gartner Group, Inc. in San Jose, Calif. "It's changed the way we work, although the last year has been one long beta test while Mi-

crosoft worked out the bugs." PC hardware vendors began bundling Windows 95 with their systems almost as soon as it becam available from Microsoft Corp. Usual they included it with a dual-load option along with Windows 3.1.

Shortcomings But Windows 95 hasn't lived up to all its

nomines. For instance, it was advertised as a plug-and-play operating sys-tem that would benefit mobile users. Supposedly, they could plug their laptops into docking stations with the pow er on and suffer no consequ feature called "hot docking." But it hasn't been as simple as it sounded. With most lastons using Windows 95. illy user must first turn off the system, a one time-consuming process

Systems, Inc. in Atlanta. But Scott said

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Weighing costs

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For portubles, though, users may be left with Windows 96 as their looe choice. Windows NT tacks plug-andplay features such as bot-docking, alhough analysts said Microsoft is work

ing on fixing that in the next release. Still, many portable computers ven-dors plan to support NT Workstation on ptops and to preload it on their ma-

Some psers who have switched to Windows NT want to standardize on the operating system across the enterprise, including laptops, many leptop vendors

But analysts aren't sure that NT on lantons is a smart idea.

We think that NT is totally overpped on the portable," Giusto sald. You can really only put NT on the ps with the fastest chips and bigsest hard drives. You can't out it on a laptop below 120 MHz, and so that leaves out corporations looking for valpe-priced laptops between \$2,500 and

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cost," Gartenberg said. He ooted that the cost of migration to NT can be 30% more than a similar migration to Win-

Win 95 may be just a passing fancy

CONTINUED FROM PAGE 1

Briscoe Stephens, advanced scientific information systems coordinator at Some users seem to agree with Le Toco's assessment and are bytossing Windows 95 to move straight from

Windows 3.1 to Windows NT Workstation mixed environments. in a Computernoorld

survey, 24% of 108 information systems pro-fessionals golled said they akipped Windows 96 and went straight to Windows NT. Bruce Smith, sys-

tempi administrator at Logicog Communication Technology, Inc., a U.S. Department of Defense subcontractor in Arlington, Va., said he is limiting his NT Workstation 4.0 upgrades to power users

"Microsoft has made to secret that NT Workstation is the long-term strategic desktop platform, so 50-50 split between the two operating we're planning to keep our desktops systems," said Deric Scott, a systems leading edge - you always have to feed engineer at Information Management

NT doesn't for most of

add specific capabilities our users. Owens Coming

NASA's Marshall Space Flight Center in Huntsville, Alz., said his agency uses a mixture of Windows 95 and NT Worksteine There are a lot of low-end users whose PCs should be used as a bost anchor, and

the buogry RAM monster," Smith said

those users are on Windows 25," Ste-phens said. "Our in Stamford, Conn. theory is if you have a larger machine, you might as well have the stability of NT Workstation." Some users said the steadily declining price of system memory is

enseking Windows NT Workstation sales. "About 70% of our large customers are choosing NT Workstation over Windows 95.

Windows 85 worthwhile Windows 3.11 "Delargy said And overall among all customers, it's about a

"We've lud pobody ask to go back ito Gartenberg said companies may also be considering the cost of moving to NT vs. Windows 95 and whether the bene-On will make it morthwhile Windows NT 4.0 has a better cost of

count for 80% of IMS operating protein dows 95 when factors such as additional mory and installation requirements Windows 95 can play a key role in Adam Taylor, group product manager making the transition to a 32-bit environ-

\$3.500 "he said.

for desktop and business systems at Microsoft said with the release of Windows NT 4.0, compa-

nies can take advantage of the similar interfaces of Windows 95 and NT 40

· Admitting that corpo-rate adoption is slower than consumer adoption of Windows 95, Taylor said organizations "just work at a slower pace because it's a thornier issue getting it de-

ployed. But we're very pleased with how eing add William McGarry, director of 15 artecture at Owens Corning Corp. in Toledo. Ohio, said he envisiona an énvirunment of mostly Windows 95 users, with NT being used for select imple-mentations. McGarry said the company

has already deployed 4,000 Windows 95 seats out of a total of 10,000 "NT for the vast majority of our users esn't add any specific capabilities," he

Win 95 just one in bushel of woes at Apple

By Lisa Picarille

Despite the wishful thinking of Windows zealots, the release of Microsoft Corp.'s Windows 55 one year ago didn't came Appie Computer, Inc. to sisk in market share, suffer financially or collect reams of had recess clinicians.

Apple managed all those things on its own.

1 think most of Apple's problems are self-inflicted," said Kevin Haune, an analyst at International Data Corp., a market research firm in Framingham, Mass. "Apple would still be in a relatively poor position even if Windows 95 never existed."

Sinking sha

Apple's market share sank to about 3% from 11% in the post 16 months, according to Dataquest, a market research firm in San Jose, Calif. That drop was due to poor product forecasting, delays in getting products to market and shrinking gross margins. Dataquest predicts Mac OS-based sys-

tems will sell 5.4 million units this year, and Windows 95 sales will reach 45.7 million units. Windows 3.1 is expected to still be going strong at 20.9 million units. But Windows 95 affected Apple by susrping the ease-ofsure reputation on which Apple had relied for a decade. Laytop learnings

Current

Whether at no r unit easy to use, wan, yo created the perception that it was as easy to use as Mar, Hause said. This crippled Apple ple from falling back on that as a differentiation. That may have limited Apple's ability to grab entry-level users as quickly."

One user said Apple's inability to deliver.

Copland. a major upgrade to its Mac OS. to further burt the Copertion, Calif. firm.

"We were waiting for Copland to be able to hold off the onalaught of Windows throughout the entire company," aid an information systems manager at a retail store er who resourced anonymuch

S. "But Copland was delayed and then delayed again, and now it is not coming out as labanted, the manager said. We don't want is to move to Windows 95, but we can't fight the operating systems battle with Mac techter nology. It's like using a slingshot when Mi-



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Win 95 lands softly on desktops

disk storage.

On operating system's first-year anniversary, users say disruption of Win 95 has been minimal

By Bob Francis and Mindy Blodgett A year after fears that Windows 95

would wreak havoc on corporate budnets to ungrade desktop bardware. the operating system that caused all the fuss barely rates a shoulder shrug.

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Yet Windows 95 has nevertheless kicked off many changes on the standoed deskton PC and boton analysts

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Win 95 may be just a passing fancy

CONTINUED FROM PAGE 1

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stability of NT Work-NT doesn't

add specific capabilities for most of our users.

Some users said the steadily declining price of system memory is sparking Windows NT Workstation saks About 70% of our boy: onlowers are chiusing XT Worksto

tion over Windows St. And overall amone all customers, it's about a long-term strategic deskino platform, so 50.50 split between the two operating ovdems," said Deric Scott, a systems leading-edge - you always have to feed engineer at Information Management

Systems, Inc. in Atlanta. But Scott said he expects that the pendulum will have coverwhelmingly swame by year's end in favor of NT Workstation, which will account for 80% of IMS' uperating system

Windows 55 can play a key role in making the transition to a 32-bit environment less painful "In most cases, if you're

looking for the smoothest migration to 32-bit, then Windows 95 is choice," said Michael Gartenberg research director at Gartner Group, Inc. in Stanford, Conn

Weighingrosts Frank Delargy, senior IS

manager at Polaroid Corp. m Waltham, Mass., said own though the company will likely eventually move to NT for higher-de-

mand environments such as engineer ing and graphics, advantages such as beilt-in networking options and drivers and: the company's initial switch to Windows 95 worthwhile

Windows 3.11," Delargy said. Gartenberg said companies may also be considering the cost of moving to NT vs. Windows 95 and whether the bene-On will make it worthwishe.

"Windows NT A 0 has a better cost of

ownership but has a higher migration cost," Gartenberg said. He noted that the cost of migration to NT can be 30%. mure than a similar mirration to Win dows 95-when factors such as additional memory and installation requirements

Adam Taylor, group product manager for desktop and business

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Win 95 just one in bushel of woes at Apple

Despite the wishful thinking of Windows avaiots the release of Microsoft Corn's Windows 96 one year ago didn't cause Apple Computer, Inc. to sink in market share suffer financially or collect reams of bad press ellippings.

Apply managed all those things on its own. I think most of Apple's problems are self-inflicted," said Kevin Hause, an analyst at International Data Corp., a grarket research firm in Framingham, Mass. "Apple would still be in a relatively poor position even if Windows 95 never existed."

Sinking shares

Apple's market share sank to about 5% from 115 in the past 18 months, according to Dataquest, a market research firm in San lose. Calif. That drop was due to moor prod uct forecasting, delays in getting products to market and shrinking gross margins.

Dataquest predicts Mac OS-based sys tems will sell 5.4 million units this year, and Windows 95 sales will reach 45.7 million units. Windows 3.1 is expected to still be

going strong at 20.9 million units. But Windows 95 affected Apple by usurping the ease-of-use reputation or which Apple had refied for a decade.

Laptop leanings

faire and large sites from

created the perception that it was as easy to use as Mac." Hause said. "This crippled Apole from falling back on that as a differentiator. That may have limited Apple's ability to grab entry level micro as mackly One user said Apple's inability to delir

further burt the Cupertino Calif. firm. "We were waiting for Copland to be able to hold off the onslaught of Windows

throughout the entire company," said an information costems manager at a retail story who requested anonymity.

byed again, and now it's not coming out as planged," the manager said. "We'don't want to move to Windows 95, but we can't fight the operating systems battle with Mactech mology It's like using a slingshot when Mi crosoft is armed with Unis."



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Amdahl looks out from Windows NT

New products go on display today

By Michael Goldberg

Amdahl Corp. today will unweil four bundles of Windows NTbased hardware, software and services that are aimed at loternet.

database, groupware and branch office applications. The centerpiece of the pack ages is the EnVista server line, which features Pentium Pro pro-

cessors from Intel Corp. and Microsoft Corp.'s Windows NT Server operating system [CW, May 6]. The packages will be available by Some bundles will include well-

known commodities such as Lotus Development Corp.'s Notes and Oracle Corp.'s Oracle? database. Amdahl also will provide its own technology for mainframe-to-Windows-NT server connectivity and for World Wide Web access to

Amdahi will	launch these Windows NT offerings using	its EnVista servers	
Paogosi	FORETION	PRICE	
Beech Office Serv	for 50 remote sites	Sight	
Debies Sow	Uses Graciary or Microsoft SQL; corres with 200G-byte (US sterage subsystem	\$195,060	
Company Service	Uses Latus Notes or Microsoft Dichargo Server to support approximately 2,500 users	\$90,000	
Hitch Survey	Uses Microsoft Internet Editionation Serves	\$77,000	

rwe-based databases Amdahl will offer consulting services to help users implement

the systems and build on its recent acquisitions of technology consulting firms DMR Group, Inc. and Trecom Business Systems Inc. Amdahl projects that its shifting mix of products will mean 60% of its sales this year will come from software and consulting ser-

vices. Package prices will depend on the application. For example, it will cost \$77,000 for the I-Net Server and \$1.5 million for a packare to centrally manage 50 remote offices (see chart).

Change direct Some mainframe shops familiar with Amdabi from its years of selling System/390-compatible hard-

Lexis-Nexis in Miamisburg, Ohio "We want them to move into directions like that [because] we want to see the cost of computing

driven down. Amdahl's entry into the commodity market is encour aging because they understand the MVS environment" of IBMible mainframes, Biggs

Jim Greene, an analyst at Summit Strategies, Inc. in Boston, said Amdahl's prepackaged approach to selling Windows NT servers indicates the vendor "is trying to get ahead of the curve. That Japproach] is really going to characterize the market.

Like other vendors. Amda seeks to differentiate itself in the Windows NT arena with its data center expertise. Greene said. IBM, with its mainframe knowhow, could adopt a similar tactic. But the company so far hasn't chosen to emphasize s Windows NT strategy, be said.

Browser

CONTINUED FROM PAGE 1

Interpet Explorer is their primary browser, while 76% of respondents said they use Netscape Navigator, But Internet Explorer has nearly doubled its standing in the nest three months. Although Netscape has the

(dominant browser) share right now, they could easily lose it to Microsoft," said Judy Cohen, director of the Internet and electronic com-Web browsers merce laboratory at

American Manager ment Systems, Inc. in Fairfax. Va. "I can see Netscape's fear," Co-

Allegations that Microsoft uses anticompetitive moves to put its Internet Explorer browner on user desktops were laid out in an eight-page letter Netscape recent ly sent to the U.S. Department of

Mirrosoff's bundling of its Internet Explorer browser for free with Windows 95 and Windows NT operating systems is unfair, Netscape officials said. Netscape charges \$49 for single copies of its Navigator browser. Netscape also accused Microsoft of offering secret deals to computer makers to carry Internet Explorer.

Microsoft officials adamantly denied the charges and called Netscape's letter "s publicity stunt." A spokesman for the Justice Department declined to comment on Netscape's letter or the department's planned action on it, if any Rut he said an antitrust investigation of Microsoft is "ongoing." Legal bluster aside, the vendor

bickering has benefited users. Upstart Netscape spurred Microsoft to build leternet products in the first place, and Microsoff's free software has beloed some Netscape users cut better deals, said Ullas Naik, an analyst at First Albaey Research in Boston. One his common was able to

get many copies of Navigator at \$3 per copy. Naik said. Mike Albert typifies the bottom-line thinking some IS

managers have adopted Albert, chairman of a World Wide Web advisory board at Bechtel Group, Inc. in San Franrisco, said if the rival browsers can do basically the same thing at the same speed, it's tough to ignore rosoft's freebie.

"We have standardized on Netscape - today. But knowing that Microsoft will catch up, we constantly reevaluate," Albert said. By the time you buy a copy [of Netscape's product1 and support and but the subscription, it's \$40 or \$50 s copy. We have roughly 10,000 desktops. What are we getting for \$500,000? Is it worth it?

By getting users booked on their browsers, Netscape and Mi-

crosoft hope to spark sales of more expensive, related software. The whole browser brouhaha will likely have spottered out by this time next year, analysts said.

Microsoft plans to include Internet Explorer functions in the Windows operating systems early next year. And Netscape plans to split Navigator into pieces that users can mix and match or plug in to other applications (see story,

below). To lobby the Justice De partment. Netscape has hired Gary Reback, the same Palo Alto, Calif., lawyer who brought Intuit, Inc.'s losing antitrust case against Microsoft last year. loc Sims, an antitrust lawyer at

ware have urged the Sunnyvale

Calif., company to branch out into

Sehter machines. Amdehl's first

response was to resell Sun Micro-

move because Amdahl can bring

management to less-costly front

office applications in the Micro-

soft world, said Jeff Biggs, Win-

Offering EnVista is a good

systems, Inc.'s Solaris servers.

its familiarity with big data cer

nes, Day, Rearis & Poque in Washington, said Netscape is all wet. Sims called the claim by Netscape - which dominates the browner market - that it is being treated unfairly by a company with a minority share "bizarre,"

etscape steers toward slimmer Navigator

Going to pieces



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Attack highlights Web security risks

By Gary H. Anthes

The recent plunder of the U.S. Department of Justice's World Wide Web site by hackers highlights a new vulnerability for orgaions getting on the Internet. The exposure is especially great for com-

panies that allow unsophisticated end users of 1996, which would criminalize the distri to maintain Web servers. Hackers defaced the Justice Department's home page Aug. 17 with antigovern ment diatribes, a swastika, a nude photo and other graffiti. The intruder was apparently protesting the Computer Decemcy Act.

bution of indecent material accessible by children on the Interact. A spokesman for the agency said it

wasn't known who had invaded the Web site (www.usdoi.gov) or how the break-in was accomplished. The Web site contains

speeches, news releases, biographies and other information about the department,

and it gets about 160,000 accesses, or hits, per week, the spokesman said. The first step toward protecting a Web server is to do a risk analysis, said Bob Bag-

will, who runs the Computer Security Re-National Institute of Standards and Tech-nology, "Obviously, if you don't put secret stuff on your Web server, it can't be lost if the system is compromised," be said. But even public information should be

protected from alteration. Barwill said That could be done by putting it on readonly optical discs, he said Bagwill said the public Web site should be isolated on a stand-alone computer, and

unnecessary protocols and features should be disabled. "Machines are not that excepgive; for \$2,000, it makes sense to have a sacrificial machine," he said.

A source at a major financial services firm

said his company put its public Web server on the "untrusted side" of a firewall to ensure that confidential information on the other side couldn't be accessed. He said ing the public site 100% secure probably isn't worth the resulting loss of conve

ence for rapid content deployment. "Hacking into your public Web server is a little emburrasting, but it may not be of any great consequence," the source said.

Robert Campbell, managing director at
Peak Consulting in Woodbridge, Va., said

the Justice Department's Web developers may have left burs in the source code that wed a hacker to gain access to executable code. That may have been done by guessing a privileged user's password or inrcepting passwords on a communication line that isn't properly protected, he said.

Campbell said the backer may have used that access to change the Web page con-

tents or reroute incom nts or reroute incoming calls to a bogus rectory containing the illicit Web content. Terry Swack, a vice president of the Webmaster's Guild, Inc. in Cambridge.

Mass., downplayed the security risks. Products such as Netscape Communications Corn.'s Secure Transaction Server and awareness by developers have mi the risk for most organizations, she said

Web certification up. See page 63.

Can you peanut butter vs. jelly

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And UNIX System and Microsoft Windows NT technologies. Despite reports of an "OS War," many users

and venders are succeeding with both UNIX and Windows NT. The facts: each is great for certain tasks and environments, and the two together often spell synergy and greater success, for vendors, software developers and IS users and managers.

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Navigator 3.0 browser wins top marks

By Garrett N. Ray

For all the vendor vs. vendor bluster in the at browser duel between Netscape Communications Corp. and Microsoft Corp., it's clear that the ongoing tussle is making a sterling Netscape product even better.

Navigator 3.0, released for general availability last week, is a well-tented, reliable and feature-tich World Wide Web browser that will att happily on the desktop of virtually any Web user. Navigator 3.0 has a substantial and most important — credible lead over Inter-

net Explorer 3.0 (CW, Aug. 19) in terms of cross-pixtierm support, adherence to Web standards and general reliability. With regard to performance, Navigator 3.0 appears in most cases to be the more responsive of the two in delivering Web pages quickly and with little faus.

This new version of Navigator, which has been widely available in seven beta-test versions since early this year, sports several enhancements over the 2.x versions. Among the most important additions to

Navigator 3.0 are new support for multimedia and Internet telephony;

TIME

of the mail and news clients; upgrades to Sun Microsystems, Inc.'s Java and JavaScript — including a justicitiem Java Compiler for 30-bit versions of Navigator; and various Hypertext Markup Lan-

guage (HTML) improvements.

For those who stack with earlier versions of Navigator or with other Web browsers that support only HTML, the new makinedia extensions in Navigator 3.0—supplied as automatically installed plug-ins—will come as a surprise.



widen, Quick Tigrand 1-1000, breighted Quick Tigrand 1-1000, breighted 3.0 supports the wider program properties wide co and saids format available on the Web. On the saids sind, which requires multimodia system with sound board more won't need to find and install separate players for the mulcal instrumental digital steretice. All, All Far of WAV Sites that other are embedded in Web pages, Josu and Jorna Script support haven't been significantly suggranded, but the new Sith Justice Sites Sith Justice saids (Saids Sites) saids (Saids Sites)

appiets on 32-bit operating systems.

Navigator 3.0 is a perfectly sensible browser for any user to install, trust and use. It is a solid browser, technically comprehensive and still considerate of Web stindward.

Ray is an internet consultant and writer in North Conway, N.H.





Revitalizing Application Delivery: Bridging to the Customer October 16 - 18, ANA Hotel, San Francisco

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duce internet-extended applications into your organizations build justification strategies for data warehousing, data mining, and DSS/OLAP: and plan for strategic and sociocal integration of high value customer processor. And these are only a few of the topics covered during the information-packed three dan!

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CYBER JUNK

With E-mail, you can have way too much of a good thing

By Mitch Wagner
Users who make their E-mail ad-

dresses known in a lot of public places are finding that they are making lots of new friends. Priends who want them to "Buy!" or "Invest!" or just "Make

Is this the future of electronic commerce? A steady stream of amoying electronic mail that starts out with come-ons such as The more times you post, the more money you could

more money you count make?"

Junk E-mail, often known as spam, is the detritus of the commercialization of the Internet. Yet unlike paper juok mail, you can't toss it in your briefcase, bring it ho and uses it for kindling.

There is no measurement of how much span gets out there, but experts say it is becoming more common as more log on to the laternet and online services. Spanimers like E-mail because it is chesp. With an laternet connection, you can send as much E-mail as you mail as you

And while E-mail recipients can filter out some spam, most of it will get through (see story at right). You can't entirely cut off junk mail without also cutting off E-mail from your co-workers, business partners and customers.

David Matter: a database re-

searcher at The Mitre Corp., tries to maintain a philosophical attitude about spam.

"It's not all that big a deal when it comes right down to it. It's not something that ruins my productivity or snything." be said. "But

It's just one more piece of crap that I doe't want. It drives me up a wall."

"We didn't get this Email capacity so we could get solicited, asid John Samuel, an information systems manager at American Airlines. "I get the same annoyance at that kind of mail as I get

when someone calls to sell me something when I'm trying to get work done."

About the only thing users can do is keep spam in perspective and be quick on the delete key. Spanmers sniff out addresses using simple E-mail programs and use them to send out their sales.

od is to capture a few thousand headers from Usenet newsgroups, use a search utility to find the line that starts out "From:" and add the addresser contributed

ch utility to find spam is U
ts out "From:" custion to
enses contained wide over

in that line to a mailing list.

Sometimes, spammers sell their address lists to one another and advertise those lists by sending out more stoom.

Users unwittingly make themselves targets for spanners in a variety of ways, such as publishing their Email addresses on World Wide Web sites, registering with Web sites, or signing up for mailing lists.

Another common channel for spam is Usener, the universal discussion forum propagated world-wide over the laternet.

Unfortunately, there is very little penalty for sending out span. On occasion, spannersget barraged with E-mail flames in reply.

mail flames in reply.
And conscientious Internet service groviders will throw spammers off their systems.
Sometimes. angry
spam recipients will

send megabytes of Email in reply to cripple
the spanner's system
— a revenge known as
mail-bombing. But in
those cases the spanmer can simply move
on to autobar system.
"What's the worst thing that

can happen to you? You lose your account. You get some nasty E-mail. That's not much," said Barry Shein, a spam fighter and president of Software Tool & Die, Inc. in Broad-line Muss.

For more tips on avoiding juni
E-mail, go to www.computer
world.com/contents

And speaking of Spam ...

Hormel makes client/server move

Horme] Foods Corp. is jumping from a pure mainframe

environment to a three-for client/server system over the next three to five years.

This is a big move for the maker of Spam and Dinty Moore seew. The \$3 billion company runs its mission-critical applications on BBM maintrance with IbB and DB2 databases. Hormel will re-engineer all its enterprise applications as distributed swittens that are NatStar, & develoo-

Nat Systems, Inc. in McLeen, Va. But Hormel's move may also signal the start of a wholesale shall to never technologies in the food industry, which has largely resisted moves off the maintrame. Only a few other food companies have made that jump in a major way, One is Campbell Soup Co. in Camden, N.J., which began a com-

ment and runtime system from

Homet's Dan Dervesus say fool companies

plete conversion of its legacy systems last year.

"The foods industry needs

to change its business practices to be more efficient, and this means we're all building new systems and making massive changes in existing systems, "said Dan Darvesus, director of information systems at Hormel in Austin, Minn. Similar shifts over the past several years have forced other industries to turn to client/severe systems, but the

food industry has dodged much of that pressure until now, said Bruce Bond, an analyst at Gartner Group, Inc. in Sumford, Cods. But the inflexibility of mainfrance-based applications will

but the interestanty or manufarance-cased appointment was force many companies to make a move over the next two years, he said.

For Hormel, the decision will put PCs on users' desks

and enlerprise applications on a octwork of servers. Daireant said. The company over the past decade has bypassed software development srchmologies that range from computer-aided software engineering to visual development tools, deeming them not mature enough. Besides, the legacy systems kept Hormel profitable over the past decade.

But the aging systems aren't flexible enough. Our core systems are relaisely old, and we want to make some mysers mare relaisely old, and we want to make some myser investments in them. Par veaux said. He wouldn't die close how much Menmel expect to spend on the systems. Homel will retrain between 30 and 50 IS staffers to die velop and ran the rewritten applications, he mich whe process is complete, all of Hommel's enterprise systems will have been migrated off the misnframe.



Hornel Foods is adopting a client/server environment

Tips to avoid junk E-mail

You can't block all junk E-mail from reaching you without throwing sway some mail you actually want to read. But you can take measures to keep some of the junk poots away. Here are

some suggestions:

• Keep a separate Internet account for cruising newsgroups, joining mailing lists and registering for Web sites Keep your main E-mail

Keep your main E-mail address private, like an unlisted number. The downside: This gives you one more mailton to loop

you one more missous to not tabe on.

• Use the automated mail-soring feature in many small packages to presort E-mail from addresses of known spam-

mers. You can also have it search for knywords such as "make mosey fast," and "more cymaking opportunity."

The desmaide: It'll be true.

to keep track of the brywords and spantmers' E-mail addresses.

Ocreate a list of E-mail addresses that you want to receive mail from and have your software reject the rest.

Screen out E-mail you want

 Your company E-mail postmaster can block internet mail from addresses known as sources of jank mail.

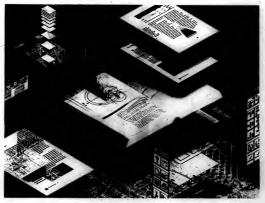
The downside: Same as

blocking Internet addresses on an individual level.

Finally, you can complain. If you get spain from a sile, complain to the postmaster of that the. It's easy: If you get II email from somebody@somecompe ng.com, send-you'r complaint. to postmaster@somecompe

pitches. The most common meth-COMPUTERWORLD AUGUST 26, 1996 (www.computerworld.com)

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Users worry that vendors will forsake standards

By Gary H. Anthes

Standards and Technology's (NIST) plan to dis-continue its testing of SQL products for compliance with ANSI standards has left mixed reactions in its wake. Some SQL watchers were blase, but others expresent concern about a move to propri-

NIST, an agency of the U.S. Departnent of Commerce, for years has actively helped develop standards for data management software, including the SQL relational database language. It also develops tests for SQL standards ance and tests and certifies products. Vendors pay NIST for the tests but not enough to fully cover the program's

Without making a formal announce-

know it won't develop test suites for ad vanced levels of SQL or for SQL enhancements. It also will discontinue the testing of SQL products, said Mark Stall, chief of software diagnostics and conformance testing at NIST in Gai-

thersburg Md "But we are not going to get out of operational testing until someone in the industry is willing to take it over," he said

One candidate is the Institute of Electri-cal and Electronics Engineers, Inc. In a study commissioned last year by NIST, TASC, Inc. in Arlington, Va., found that the agency's SQL program produced a whosping 41% "economic rate of return" on investment. As a result of the program, "society has realized increased market competition and

a lower average price for SQL prod ucts," the consulting firm concluded. The testing gives users a "comfort level," said Warren Capos, past presi-

Group. Possibly because of that comfort level, SQL vendors won't diverge from SQL standards any time soon, predicted Wayne Kernochan, vice president of commercial systems research at Aberdeen Group, Inc. in Boston.

Roper Sippl, a founder and cost president of the X/Open SQL Access Group. serred. He said the loss of the NIST certification program isn't serious because any vendor that de-

viates from standards will be punished in the marketnlace Still, Kernochan expects that over time vendors may out other criteria ... for example, per-

formance in handling multimedia queries - ahead of strict standards

Worry beads Some users and ven cerned. This is almost certainly going to result in a divergence of products in the marketplace, to the detriment of the user community and the market at

tute's SQL committee and director of standards strategy at Sybase, Inc.

"I am concerned about NIST backing out of this business after having set a bunch of expectations in the marketplace," said James de Raeve, manager of testing at Open Group in Cambridge, England. The net result is a test tool that ceases to be relevant after a period of time as the standard moves on.

> trative Office of the U.S. Courts in Washington has issued a reques for bids for rela tional database management systems. It specifies that proposed

certified by NIST to comply with SQL standards. "We've found the NIST tes suites and certifi

dor groups are con- cation process very valuable in help us nort through the products out there said Steve Beckman, chief of the Appli ministration of the U.S. Courts. "If they didn't do it, we'd have to do it or pay rone to do it."

large," said Don Deutsch, chairman of the American National Standards Instiment, NIST has let standards groups dent of the Mid-Atlantic Oracle Users Lotus accelerates CC:Mail development

By Tim Ouellette

Lotus Development Corp. is sending the message to users that basic electronic mail is here to stay.

The Cambridge, Mass., firm next month will ship Version 7.0 of CC Mail and plans to improve wide-area management tools for CC:Mail by year's end. On tap for next year are further full product upgrades, most significantly the addition of support for internet messaging standards and tight integration with Microsoft Corp.'s Windows NT Server and group calendaring products.

Down the road, Lotus is also looking to add Java support to CC:Mail for the Web, a product that lets users access E-mail from a World Wide Web

CC:Mail, with more than 10 million sers, has long been the mainstay of Lotus' messaging strategy. But the improved messaging in Notes gives no-ers a combination of E-mail and groupware and has many customers CC:Mail (CW. March 3).

To allay these fears, CC:Mail 7.0 will offer a 32-bit client with full support for the Messaging Application Programming Interface standard.

This lets the CC:Mail client access non-CC:Mail message stores such as Microsoft's Exchange Server Lotus' commitment is good news to COMPUTERWORLD AUGUST 26, 1996 (www.computerworld.com)

users'who don't want to install a whole A recent survey of corporate infornation systems managers by UKbased research firm Xeobon found

that almost half have no strougener plans, and price is a major reason for this. CC:Mail costs \$55 per user, while Notes costs \$55 for each client and \$495 for the basic server. This doesn't include extra integration and programming costs associated with

And for those using groupware, E-mail applications still accounted for more than half of all groupware use.

> Middle of the road Lotus officials say the interest in

> groupware by vendors such as Novell, Inc., Microsoft and Netscape Commo nications Corp. has opened a midd ground for CC:Mail. Thus, Lotus strategy is to focus CC Mail at middletier and smaller accounts, said Larry lones, CC-Mail's marketing director. while still catering to large con that have traditionally run CC Mail.

> Hitachi Ltd. in Japan, which has the largest CC:Mail installation with 85,000 users, spent three months reviewing its messaging strategy before sticking with CC:Mail.

Bulens bolts from Lotus Den Balens, former head of Lotus Deve



nt Corp.'s 12,000 located just down the r from Lotus in Cambrid

eva fund raises \$500 million entere capital firm Kleiner Perkins Ca Byers, a backer of Netscape Common

nt in companies developi lucts for Java. The fund h

CompuServe Corp. has posted a facal first quarter loss of \$29.5 million. First-quarter re e grew by 12% to \$206.6 million, up from \$186.5 million. The company place to cut 150

PROJECTS Lectioned Martin brings intrasets to 74,000 plokel cours.

ADVICE Is should own the intranet infrastruc-ture lest think twice

EXPLAINER Our enclaires survey finds S tabling a temperatury sit — especially in internat-

ANALYSIS



Role Models

BY ROBERT L. SCHEIER

No more Rodney Dangerfield. Done right, intranets can boost respect for IS by making user jobs easier. But there's no single best role for technologists.

Smart approaches stress user enablement and build on IS expertise in the infrastructure of PCs, LANs and client/server. Losing roles: content provider, standards dictator.

Here are three good ways IS can lead — and one to avoid.



Prophet

Role: Sfir the waters, teach users to fish. Example: David Sarnoff Research Center, in Princeton, N.J.

Corporate 15 provides network backbone, development and publishing tools, and guidelines. User "information content providers" create new interest-based applications.

"Our strategy is to make people want to use the intranet," says webmaster Joel Ruffin, "Instead of saying, "We're the champions of this technology," we say, "What are your ideas? Let your mind run wild."

say, 'What are your ideas? Let your mind run wild.'

Possible upddes: Good rapport with users; big kudos for IS if low-cost intranets give competitive edge. Demaide risks: Choosing Web tech-

nology platforms that can't scale as business grows; but scat if efforts fail to boost revenues.



Role: Suit up with odd er functions to help se standards, develo

Sciences Corp.

IS sits on an eight-member committee that sets the San Bernardino, Calif., company's Web standards and development priorities. Other members are from marketing, product development

An IS-developed intranet will serve

as a model for others in the company. says Greg Niemiec, manager of infortion services.

Upside potential: Good rapport and credibility with users. All sites get a uniorm look and feel, thanks to standard

Web page model. IS avoids extra headaches because departments control content.

Downside risk: In some organizations, committee management could break down when dealing with bigger, more complex intranets. Departmental intranets can clog networks. Who pays for infrastructure npgrade?

Helping Hand Role: Support core technology hand out best practices for content.

Example: Weverhaeuser Co. Corporate IS takes technical charge of 4,000-user global met that provides information on oany, customers, competitors and

ojects. It also sits on a cross-functional team that sets standards for Web hnology and content manage "We make it easy for people to do ngs in a productive and efficient way,

ing what they do. We encourage the development of [content] standards,"
says John Anderson, director of technology assessment and planning, "But editor, management.

se aren't IS standards." Weyerhaeuser splits intranct mangement roles by classifying content as isher "official" or "unofficial." Official content is posted on the companywide server, contains links to other sites within the company and must meet corporate look-and-feel guidelines. Unofficial content appears only on a partmental server and is subject to

only departmental review.

Upside potential: IS is seen as an abler of, not an impediment to, business goals. Empowered, innovative users IS shares in credit for big boosts in movide conclination and com-

Downside risk: Increased IS work-

increased support and training. Also, decentralized development can cause headaches with incompatible Web servers and database access middle-

Avoid! Ignored Parent



A user department creat ed its own intranet to provide project plans and design requirements to 12 to 15 developers, Reason: Concerns about quick IS delivery and fear of pressure to

store pages on corporate server. Explains Chuck Krisak, dev ment adviser: "Our being able to dissate information was our problem - not an IT or corporatewide problem. Anything we were going to do to burt us network [performance] wise -

we were just going to burt ourselves." Upside potential: IS stock rises by escuing failing departmental intrunet. Downside risks Things work just fine without IS, which erodes technical rtment's credibility and increases department's inolation

For an expended version of this article, see our outline version at www.computerworld. Also on the site this mosts:

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oldconfetrance Computerworld Intranets 3



By Collecte Cand Principal, Great & Young Cond Youth Ernet & Young's Careter for Rectionings Conditionent, The organization has above drawn disco-

intract history project for plated companies. 18.0.5: There are seen and challenges here. Next experience haven't day wouthed to the proof the parties. When early should neve the content? Outsit, 5 mere the intersection.

Many people love placed the ordinactor in S. And the restrector has a proving responsibility for partner consequence.

Informatic IT people have sever less peol at context component. But'not their context context and people and might make not soon logs are up to dare, but soon of face paper sool to be corrected and

1002: Put of the challenge is that hash for nonnajing interest and Web content are no five and constant. It's like clear/some 19 years up. Deal links made to the constant of the links in group to extense what are years predicted. We are posed over function that would nerice

We may send a new function that would review new content. Take pricing, Container service mps send up-to-date price information, and they send to beave about sales or priceotions. Linking ourlating with container service int's down takes.

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Lockheed Martin Corp.

Bethrade, Md.

Created by the 1995 merger of Lockbeed Corp. and Martin Marletta Corp., it is the nation's largest defense contractor.

Andrea Pair, director of plans, policies as procedures at Enterprise Information Systems Co. (E1S), a division based in

What they're doing

Using intranets to disseminate information to 70,000 of the company's 190,000 employees. Individual departments and units have their own home pages. "I'd say there are at least 90,000 home pages We have [internally developed] search engines that will index them for you if you are looking for a particular topic," Pair says.

Costa/Payoffs
Lockheed Martin doesn't have hard cost
numbers, but Pair says the EIS WebServ
group is spending "about \$50,000" to set
up a server that will run Web pages so

internal users don't have to buy their own servers.

Other projects are cost-justified on a case-by-case basis. Pair says Lockheed Martin has saved more than \$600,000 per

Biggest people chellenge Geting upper management comfortable with the idea that employees weren't going to abuse the system. Pair't group has created an educational packet for meetings with executive staff that focuses on basic information and security concerns.

Biggest technology challenge

year in paper costs.

Security, particularly for Lockheed Martin's energy-circined units, which are connected to the Department of Defense network. "If we let then in to our instranct, it would mean that everybody in the DOD network would have access to our instruct," Pair says. So Lockheed Martin has, in some instances, given the energy companies access to a server with a strictly controlled subset of intranet information. For other parts of the company, configuring and outfitting 70,000 PCs with software presents a major challenge.

Tools used 486-class PCs, Macintoshes and Unix box-

es, in "various and sundry configurations."
Netscape Navigator is the browser.

heed Next steps
Sevelo suidelines for Web publication.

Look into eliminating all paper forms in favor of making them available through the intranet. Look into using Weh technology to create a front cod to Lockheed Martin's "heritage" and instinct

Martin's beritage applications.

By Steve Alexander, a freelance writer in Edina, Minn. He can be reached at sorion@ix.netcom.com.





4 Computerworld Intrane

Netscape's James Barksdale on Informix.

James Barksdale President and CEO, Netscope Communications "Netscape partners with Informix because of its unique Web database technology.

Together, we provide customers so ideal solution for sext-generation, high-performance, content-rich Web applications."

Jeff Hudson VP of Business Development, Informia The Web requires a database that combined high performance with the shilly for moving a wider compared or combined to the compared of the combined to the compared of the combined to the comb

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Intranet Roles EXPLAINER

Most organizations are still working out the most effective ways to develop and maintain intrancis. In most cases, IS is taking a leadership role but working closely with piers.

Computerworld Intranets recently polled 75 CIOs and sensor IS executives in leading organizations about intrunet roles and responsibilities. Their answers follow

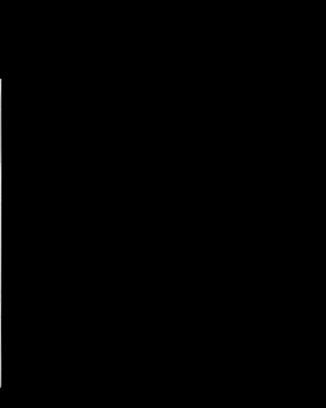












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EXPLAINER

Intranet Roles

Onll Down

Most organizations are still working out the most effective ways to develop and maintain intranets. In most cases, IS is taking a leadership role but working closely with users.

Computerworld Intrancts recently polled 75 CIOs and senior IS executives in leading organizations about intranct roles and responsibilities. Their answers follow:

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tons of reports, product announcements, articles.

it's it all mean? Find out each month with Computerworld Intranets, the manager's guide to what's really important.

DA HONTHUS IINI-MAGAZINE

You'll get information on the you can get a decision of the constant of the co

"mini-magazine" of highly focused pages that examine the critical intranet management issues you need to know.

- IN THIS WEEK'S ISSUE:
- Analysis: Role models IS should empower users and contribute its expertise in infrastructure when setting up intranets.
- Projects: Lockhood Martin brings intranets to 70,000 global users. Annual savings from policies and procedures: \$600,000.
- Advice: IS should own the intranet infrastructure
 but think twice about managing content.
- Emission: Our exclusive survey finds IS taking a leadership role — especially in funding — but working closely with users.



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Exterminator

Netscape is accusing Microsoft of trying to exterminate it. But the question I have is why Microsoft

would want to do such a stupid thing. In a scathing letter to the U.S. Department of Justice dated Aug. 12, Netscape accused Microsoft of all sorts of anticompetitive sins, including pressuring PC makers to favor its Internet Explorer browser in exchange for price breaks; offering corporate customers irresistible operating system deals if they would discourage the use of Netscape's Navigator, and imposing licensing terms that restricted customers from using any thing other than Microsoft Internet products. Nothing has been proved, and Microsoft has dismissed the whole thing as a publicity stunt.

If the charges are true, though, they paint a picture

of Microsoft as a software velociraptor beat on rayaging its onemies, which would be really dumb. The fact is, Microsoft can stamo out Netscape if it really wants to. The company has the cash to give away software for as long as it takes to win dommant market share. If innovation fails, it can simply outlast the

But why would it want to? If Microsoft owned the Internet becauser and server market, it would invite intense government scrutiny, which is the last thing it wants right now. In fact, Microsoft is so ner yous about antitrust action that it is reportedly trying to shore up the Macintosh third-party market through a clandestine business group. It's hard to imagine why it would try to roll over a healthier competitor at the same time. It is in Microsoft's best interest that Netscape remain an aggressive, vigorous rival. If Microsoft is resorting to perarious tectics to kill this competitor, then its prior-

they are "paranoid," but paranoia shouldn't lead to extermination - at least not while the government has an open file on you. Microsoft has asserted that its sales tactics aren't ticompetitive because consumers enjoy low prices and impovative products. Evidence of a conscious effort to extinguish a healthy rival would blow that argument apart. The elimination of Netscape would end the torrid pace of innovation that the Internet market has seen in the past 18 months. It would expose Microsoft to un-

precedented scrutiny and unnerve consumers. I just

don't see why Microsoft would do it.

ities are out of whack. Microsoft people like to brag that



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Cyrix received unfair grade

e at the C+ grade given to to ta 6x86-P186 in "Big proble and KO Cyrix PC" [CW.] doctorate that the s d had a faulty por v, and I can sympat ing the problem. But surely soluted problem such as this an't warrant the whole prodact line being given this low

The reviewers call the Ceri nachine "impressive" and "blind-ingly fast" and show that it out ed a comparable Pened machine in every e. In abort, the machine per er supply problem was sort

CMA holds strong after 50 years

Your recent Page 1 article I*User groups strive to survive," CW, July [5] paints a rather bleak portrait of user groups present and future, cit ing only one example of a group that has emericated membership growth in the past two years.

The Communications Managers Association (CMA) has provided education to telecommunications. networking and information orderns and users for nearly 50 years and is experiencing strong and healthy erowth. Prehans that is because CMA is sensitive to the very pitialis ned in your article. CMA proerams are developed by users, for

had no may of b

To be fair, we then went the tre distance to seek out Cyric and ther meet for feedback. If the probion hadn't come up, the score sh would have moved up a

users. And that is wity more than 700 telecommunications/informs tion technology professionals from more than 200 firms are members

Matthew O'Bries CMA presid Senior analy Prodigy Services Co

Tampa Fla.

Shifty moves

I enjoyed Paul Gillin's editorial that had the bit on paradigm shifts ["Faradigm drift," CW, Aug. 5]. It seems to me the vendors' siren song of paradism shifts is really about rei ting that "pair of dimes" shifting out of your pocket and into theirs.

Isn't it ironic?

in "Year 2000, client/server linked (CW, July 29). For the past 10 years, those of us who worked on mainframe (legacy) software and were trying to make people aware of the problem were told. There is no year 2000 problem. Those mainframe systems are going to be replaced by client/server systems anyway." The reason there is a year 2000 problem is the client/server bype

that discouraged people from taking corrective action on the problem Kirker Re Newbury Park, Calif.

Foolish thoughts

After reading "NT 4.0 beats clock" [CW, July 22], I called the local Eggbead [Software' store] and asked when it would have NT 4.0 in stock. Our Microsoft rep was here this morning, and he promised 4.0 in October," the salesman replied. I quoted the Computerworld acticle, and bis response was, "You're a

fool to believe anything Microsoft says." So it goes. Mike Neat Director of network services School of Business Administration

Postland State University Postland Ore

#Computerworld welcomes com from its readers. Letters should not exceed one words and should be addressed to Paul Gillin, Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path. Framingham, Mass. 01701. Fax numb (506) 875-8931; Internet: letters@cur. com. Please include an address and phone number for verification.

Opening soon: Microsoft National Bank

f Bill Gates can persuade the Justice Department to go easy on Microsoft's monopoly in PC operat-ing systems, just imagine how easily be could uade regulatory agencies to grant him a bank charter. Give on a few tons of documents, hold several meetings that consist of sifty bureaucratic ering and — woila! — he's got an \$18 bills de novo bank with millions of online "branches

overmight. And not a trooped of mortar nigeded. Why speculate about the notion of a Micross bank? Because Gates is an impatient man. He doesn't believe bankers are moving fast enough to make home banking a success. The entrepreneurial instinct of such a highly successful person suggests that if conventional approaches don't work, he will bypass them and take over. Gates is

plans to push online banking, but consumers just aren't ready.

a helluva marketer and promoter; he could sell the concept with pizzazz

There's also a bit more to this pro meets the eye. A recent phone call from Micro-soft's lead person in the home-banking fray revealed some interesting insights. First, the only reason this well-informed and well-connects gentleman called me is that he knows how I feel about home banking — it's a solution searching for a problem. I think he'd trying to swing me (and at least one other highly visible skeptic)

over to his camp. Second, the executive said, home banking has to be sold aggressively by banks. He figures consumers aren't likely to rush in and sign op. He's

bsolutely correct about the absence of a rush. The part about having to sell online banking aggressively to coosumers worries me. If that's the case, then home banking is a cut that has already used up eight lives in the past 25 years.

has failed. If the needs on the two cal-banker's sales skills, then bone banking is dead for

smarter than ever Give them good one to switch. and they doo't Home basking

doesn't yet provide

Today's consumers are in love with the checkbook. They aren't complaining about checks. (Banks, of course, hate checks because they're expensive to process.) Consumers don't want to right decade. se their spending habits on the Internet, er. They just aren't ready to say, "I think I'll mp on the Internet today and pay my bills."

The promoters of home banking point to sur-

veys that show the increasing penetration of PCs in U.S. households. But that doesn't mean those PCs will be used for online banking. If a poll said 80% of U.S. homeowners have a back yard, does it mean they all want to plant tomatoes? Even bank Every major bank has tried home banking and ing's technocrats don't do online banking wi hey go home

from home are missing, then the

iof success will de pend on a cultural grade

brace bome bank ing just because it fits in to their elec-

ally fade out of the pictu money — will eventually fade out of the picture. Home banking is a sure thing, once we find its

Gillin is president of Computer Based Solutions, Inc., a ng technology consultancy in Dallas. His Internet

Thornton May

Too many experts, not enough expertise



e digital future has fallen into the clutches of the schmooze-oisie - pseudo experts engaged in ence circuits are awash with experts for hire. Se-

high-priced, frequently wrong and rarely value-pert on experts - the meta-expert roducing "expert" opinion. urvival in the high-hype econ-

omy requires that we figure out what to do about the experts The half-life of expertise has

mpressed. Every month, orinto their technology base. Every six months, a

major systems upgrade is required. Every nine months, a fundamental technology mutation emerges from the vendor community. In this rapidly recompiling world, one wonders how the experts keep up - what magic process do they use to stay on top of the intellectual food chain? The cace of change, combined with corp America's reduced head count (i.e., fewer heads

pseudo experts to figure out the business implications of discontinuous technological developments), produced a period of good living for phrase-meistering indusry analysts. But of late, the punditry market has bulkanized into a confusing labyrinth of anbapec ialties and micromarkets.

The trade journals and rubber-chicken conferrious managers who seek to solve serious prob-The life and career of every ClO, technologist legss can't be sure who's worth paying attention and end user is affected by wave after wave of its. So a new breed of expert has enserged: the ex-This goes too far.

The expert bi reached a point of Matthusian unsustainability. Empirical evidence is pretty danning. Though the experts don't agree on much, they do share an inability to get the foture right. Remember: The PC pler, client/server technology would reduce

the total costs of computing and the World Wide Web would be used to sell things. The sad reality is that large organizations will spend billions of dollars on bad consulting advice.

erican CIOs, the sheriffs of the new cyberl tier, are no longer standing by possively while noisy, matrix-toting child-gurus assault rational-ty, obfascale technology futures and consume scarce corporate resources. The CIOs are saying. Give us naise or get thee gone, sound-bite-rich

pected service to customers - have concluded that we live in a world with no Solomons. Smart companies are taking responsibility for figuring

out the new value equation by themselves.

World-class companies have ceased the pursu of gurus and are concentrating on demonstrating unambiguous progress toward their business ob tives. They are rooting out the vestiges of non producing expert worship and setting up "mi are firewalls" to keep out the charle

With expertise comes respons organizations require their experts to take an eouity participation in the rollout of their guidence Indeed, several organizations now require that benefits actually materialize before the experts ect their fees. Real experts guarantee their

Experts have a responsibility to create knowle dge, whether in the library, the laboratory or the workplace. Experts should be dedicated to devel oping the capacities to reflect, create and under stand. Whereas today's measure of expertise is how much you charge for a speech, in the post hype economy, we need men and women who can elevate our sights and ennoble our efforts.

May is vice president of research and education at Cambridge Technology Partners, Inc. in Cambridge, Mass.

engaged in content-free punditry.

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Power portables

133-MHz systems from Compaq, Gateway are solid laptop performers

By Chris DeVoney Even as 150-MHz Pentium m take charge at the high end of the noteook sector, new 133-MHz systems from Compaq Computer Corp. and Gateway 2000, Inc. hold their own. The \$4,999 Compaq LTE 5300 and \$5,599 Gateway Solo 133 don't offer the most smallest

case, but they have enough power to han-

The LTE \$300, part of Compaq's full-size the 8 pounds in the office (12 is when traveling with needed accensories), which is typical for portables

at emphasize power over weight. The 12.1-in, thin film transistor (sistor (TFT) display with its 800 by 600 resolution and 64,000 cotors offers solid, crisp characters and good dynamic color range for presentations or full-motion video. The large keyboard has a comprehensible layout. The "ecaser-head" pointer and buttoos are comfortable to use.

Like other portables - including the Gateway 2000 Solo - the LTE 5300's I in speakers deliver sound that a small group abould be able to hear but that is too quiet for anything else. The solution

is to plug in external speakers to one of several multimedia and standard comster jacks and outputs. The unit's flexible MultiBay add-in slot can hold a 3.5-in. Suppy drive, a 5.25-

in. floppy drive, a four-speed CD-ROM drive, a six-speed CD-ROM drive, an additional hard disk or a second lithi ion battery. You can also shed the weight by leaving the Although the Multi-Bay holds one device

at a time, you can swap the Soppy and CD-ROM without restarting the system ws 3.1. Windows NT 3.51 or NT 4.0. But you are out of lock with Windows 95, which doesn't allow such

Our unit was equipped with a swap-pable 1.55G-byte hard disk, a six-speed CD-ROM drive, a 3.5-in. floppy drive and 16M bytes of RAM. The LTE maxes out at an incredible 80M bytes of RAM. The unit's perform

lent. Although the video performance, measured using standard benchmarks, is about a fifth that of a desktop unit, the overall performance is on par with the fullest-featured - and one of the fastest - 133-MHz laptops we have seen. To shibs America Information Systems

230CTYT

MPEG/TV adapter, an option that adds \$599 to the LTE's price, It came with device drivers that were corrupted. The adapter offers hardware playback for MPEG and CD-V movies on the comput-

Also, the adapter captures single-frame or full-motion video from NTSC or S-Video sources. Drivers delivered over-night by Compaq solved our problems. in all aspects, the LTE packs enor of a wallop for office, programm sentation or commo Short of computer-sided design and manufacturing (CAD/CAM) applications, which would need a faster display. the LTE could be a solid replacement for a desistop system.

eway's Solo 122 Don't be fooled by the sees price of this unit. It is justified because the Solo 133 packs more into its 6-pound The Solo has an 11.2-in. TFT disp

with 800 by 600 resolution. Alth that is smaller than the screens found on comparable portables, the characters are crisp, and the color dynamic range is adequate. But the drivers supp only 256 colors rather than the 64,000 colors supported by most notebooks. Compaq and Gateway, heav 44



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er versions of DG's NumaLine

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Inc. processors and the DG-UX

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technology, for Non-Uniform

Memory Access. NUMA uses

across processing units to give a

system with many processors a

single-system image. That means

customers can use applications

for an SMP system in computers

that have large numbers of pro-

pessors without rewriting their

DG's first NUMA-based serv

ers that use Intel's Protium chins

are due late this year or early next

year. Unisys officials said their

company's versions will follow

Observers said DG could use

to 10 processors in one box -

e guickly than planned

in other notebooks at this price.

That AGM bates always big role

in the Solo's performance. Under

Windows 95, the Solo 133 was an

astonishing 50% faster than the

Toshiba 720CDT or Compaq LTE

5300 when running 16- and 30-bit

applications. Some of the Solo's

or depth. But programs under

Windows 95 or Windows NT get

solid benefits from the capacious

Don't expect this notebook to

a desktop running CAD/CAM or any application that

rformance is owed to paltry col-

mirkh

in Plantation, Fla

han Fernandez director of MIS

at Cigns Dental Health, a dental

bealth maintenance organization

By Michael Goldberg

DG will make its

Numal line shared

memory technol-

In its Aviion servers.

ant, DG-UX

A technology-sharing deal recent by announced by Data General Corp. and Unises Corp. should help those vendors brang greater scalability to their multiprocessing servers, users and analysts Under the pact,

ogy available to Unisys to use in

its symmetrical multiprocessing

(SMP) servers le turn l'itimes

will let DG include its Scalable Co.

herent Memory bus technology

DG, in Westboro, Mass., and

Unisys, in Blue Bell, Pa., are using

the technology in computer fam-

ites that use latel Corp. processors. And both companies are em-

phasizing their support for the

SCO, Inc. UnixWare operating

system, although DG will contin-

or to support its own links vari-

Sharing those important traits lets

the companies pass along engi-

neering cost savings to users

while offering servers that poten-

tially could scale to dozens of pro-

do these things anyway. And by

nies were going to have to

Savings shared, too

cresors, analysts said. "By book or by crook, these Illuminata, Inc., a research firm in Nashua, N.H. For users, the deal "translates

to better performance, higher availability and more scalability -

from PC LAN environments" up the entermine

said Terry Sheridan, a principal against at Dataquest in San Jose. Hers said they were generally upbest and added that they saw the companies' move to

if it presents challenges in future migrations from older "From my perspective, it's very sitive. The Motorola [chips that

ship, they'll get it done faster," said Jonathan Eunice, president of

things that end users are looking Symmetrical

multiprocessing computing chain

embrace letel as an important long term business decision, even

DG was usinel were at a dead

Impact of the deal

management across platforms on the rise

By Jaikumar Vijavan Storage vendors are accelerating

"DG is making the right move their efforts to offer centralized storage management capabilities for their company," said Bob Ostrow, a vice president at Bloom across multiple hardware platberg Financial Markets in New Last week for instance Sea-York, another longtime DG user If they can improve orice/perfor gate Software Storage Manage ment Group became the latest Cigns and Bloomberg use earli-

vendor to jump into play, with a product aimed at networks that rup both Microsoft Corp. Withdown NT Server and Novell. Inc.'s NetWare operating systems. The company's latest Seags ExecView software can be load on either an NT Server or a Win-

dows 95 client and lets network administrators monitor scheduled, active and completed backup operations from a central console. The product also lets administrators identify and respond to backup operations that require attention.

Increasingly common Those kinds of management capabilities are becoming stundard features in storage products as user environments become increasingly complex, analysts

Union' Scalable Coherent bus For instance, wendors such as technology to bring out a server IBM, Cheyenne Software, Inc., that uses Pentium Pro chios - up Legato Systems, Inc. and Sterling Software, Inc. offer varying level of centralized storage manage ment across different hardware platforms.

For any software utility to sur vive in a multiple platform, multiple operating system environ ment, it has to be compatible all the way across," said Robert Abraham, a vice president at Freeman Associates, Inc., a market research firm to Senta Barbera.

Users are simply going to demand and take for granted that this kind of capability will be proproducts he said One such user is Belcan Engi neering in Cincinnati. The com-

my which uses five NT and Net Ware servers for backup opera tions, welcomes cross-platform management products such as Seagate's ExecView. to each server individually to

check if everything was running properly. ExecView allows me to do the same thing from one spot," said Paul Radowski senior network specialist at Belcan. Backing up the enterprise

Backup Exec for Windows NT v6.11 SQt Server
 Exchange server

The new software will be available later this month in 5, 20 and 50-server versions. Prices start at \$1,395 for five servers. \$3,595 for 20 servers and \$5,595 for 50 servers

In addition to ExecView, Sea gate last week also announced Rackun Exec for NetWare version 7.11. The release includes many cements over the previous version, including full integrati with Novell's NetWare Directory ervices start-up diagnostics and support for the NetWare Admin

trator utility.

Compag's, Gateway's solid 133-MHz portables can hold either a 3.5-in floopy or a RAM - an amount you don't see CD-ROM at one time, but not both Unlike the LTE you can't hot-swap drives, which makes

talling some device drivery

or Windows NT 4.0 trustrating

because you may need floory

disks and a CD-ROM to load

For \$5,599, you get a 1.35G-

wte hard disk, a 1.41M-byte floo

py drive, a slaspeed CD-ROM

drive and two batteries (each test

those drivers

doing it as a business relation CONTINUED FROM PAGE 41

The screen is acceptable for many applications but inadequate for owing photorealistic images as with some presentations or imedia products — or using dane software such as the Windows 95 Plus Pack's foot othing, which requires 16-bit

The Solo's keyboard isn't as big as the LTE's, but it is the same size as most other notebook keyboards and is as comfortable as most. The 2-in, square touchoad pointing device and buttons get a rorable nod, but you might want to try out the touchood before buying if you aren't familiar with the concept. It provokes strong

reactions, pro and con. The Solo wasn't designed with the flexibility of the LTE. The unit

sports a whopping 40M bytes of

ed powering the unit for more than 3½ hours). The package also includes a soft case for the floopy/ CD-ROM that itsn't mounted in the commuter a comfortable curreing case a 29 KV his lose few (modern PC card, a choice of Windows or Windows NT Microsoft Office and a variety of other utility and communications software. It also

needs full color Bot as a wortable the Solo 133 is a solid product with respectable performance in everything else. DeViney is a technology writer in

COMPUTERWORLD AUGUST 26, 1996 (pww.compute

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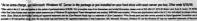
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According to the Melville, N.Y., com the product is a lightweight optical storage device that reliably stores hundreds of images on 230M-byte cartridges. It was de-

signed for print graphics and digital carners image storage for backing up and archiving files and databases and storing music. Each cartridge costs \$10. The cartridges resist shock, magnetic fields and dust and are rated for 30 years of archival-quality storage. The device works in either vertical or horizontal orientation. It requires Apole Computer, Inc.'s Mac OS 6.0.7 or higher, a Macintosh Classic or greater, Windows 3.x. Windows 95, Windows NT or DOS 5.0. PC

persalsoneed a SCSI adapter. Pricing for SYS 230 SCSI Personal Stor. age System starts at \$299 for an internal ► Olympus Image Systems (516) 844-5000 www.ohmtwamerica.com

Hewlett-Packard Co. has introduced HP E2920 PCL a series of computer verification tools for designers who develop,

debug and validate products.

According to the Palo Alto, Calif., company, the tools include a Peripheral Component Interconnect (PCI) exerciser and anabrzer with a fully in-system-program PCI master and target device, a PCI analyzer user interface for Windows 95 and Windows NT operating systems for interactive analysis of PCI bus traffic and a PCI exerciser user interface for Windows 95 and Windows NT for interactive debugging. Each tool is sold separately. Pricing

starts at \$2,950. ► Herelett-Packard (415) 857,1501 strange, in p. com

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According to the Fremont, Calif., company, the monitors of plug-andand three-year war-

They can be used in com Data's 17-in PC or Macin-CL17 Super VGA mon tosh configuraitor has play and play

The monitries have 1.280 by 1.024 dot/in, resolution and on-screen display digital controls. The CL15E has a 15-in. diagonal flat screen. The CL17 has a 17-in. diagonal flat screen. The CL15E costs \$379. The CL17 costs

0070 Pacom Data (510) 440-7200

tions.

www.pacomdata.com Sharp Electronics Corp. has announced

PC-9080, a high-performance, 133-MHz Pentium-based notebook computer. According to the Mahwah, N.J., company, PC-9080 weighs 7.3 pounds and can display IBM's Extended Graphics Array 1,024 by 768 dot/in. format images on its 12.1-in. screen. It features a 64-bit Peripheral Conponent interconnect designed to let users

use system performance and funct ality. It also has a six-speed CD-ROM drive, a built in 28.8 bit/sec. fax/modem, MPEG I software for video compression, a rec able 3.5-in. floppy drive, 2M bytes of video RAM and a touchput pointing device. Pricing for PC-9080 starts at \$6,000.

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The Intricacies

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Computing

of mainframe computing

was relatively simple.

In today's distributed

computing environments,

things are very different.

In retrospect, the era

Integrating and managing the IT infrastructure in the enterprise of today can be an overwhelming job.

In retrospect, the era of mainframe computing was relatively simple. Mainframe revironments consisted of only seven major components — the host computer, front-end processors, controllers, terminals, moderns, dedicated private lines and application tools. For each of these products, there was only a handful of suppliers to choose from:

Distributed computing presents complex challenges

In today's distributed computing environments, things are very different-These environments are vastly more complex, containing hundreds of devices from superservers to PCs; from portable computers to cellular devices; from hubs and routers to gateways and switches; from printers to storage devices. There are hundreds of PC manufacturers and suppliers of communications devices and thousands of vendors of peripheral devices and software. The result? Piecing together the right combination of computing . and communications equipment has become a daunting task for technology decision makers everywhere.

Not surprisingly, companies' implementing client/server architectures can end up with one-of-a-kind mixtures of hardware, software, operating systems and communications devices: For instance, a Banyan VINES network might be dedicated to the applications

of one department, while other departments night be running applications on Windows NT and Rovell. And while one department runs NT on Compag servers, another has Sun workstations running UNIX. Vital network management devices often come from different vendors. And who knows what software is on each PC? Simply put, integrating and managing the IT linearity-turn in the enterprise of today can be an overwhelming job.

Telecommunications technologies are proliferating

The same is true for many companies' telecom systems, due to the proliferation of new communications technologies. And the situation is getting even more challenging as computing and communications technologies merge. Companies need to be assured that their current and future network and devices can interoperate. They require systems that can connect all the pieces today's PBX systems, computer telephony applications, Internet and intranet applications, wireless and infrared devices, network services, and voice, data, image and video - into the emerging world of broadband, multimedia communications.

End-user support costs are significant

Another factor to consider is the cost of end-user support. According to a

An organization devotes s

Management Tool," support labor represents over 70% of the total cost of ownership in a client/server environment. And over time, the labor component continues to increase, while technology decreases as a percentage of the total cost of ownership. With the growing

system strategies designed to minimize cost creep. equip and support an end user with a LAN-connected workstation can range from \$6,000 to \$12,000 a year, depending on how often a support engineer must

nature, including:

report from the Gartner Croup titled emphasis on speed to market "Total Cost of Ownership: A Powerful *growing role of technology as a competitive asset

to the management and suppor it has to divert resource

and communications cost of supporting end users - including growing reliance on technology for education, systems operations and mission-critical business applications maintenance - client/server computing solutions must include resource and arowing need for business to

*advent of supply chain integration.

inter- and intracompany data sharing

core competency. And if that organi-

zation decides to seek outside help,

the services of several companies are

have a sound network infrastructure

integrate telecommunications and LAN/WAN capabilities For example, the average user requires What often happens is that an organi-\$250 worth of support per month alone zation devotes so much time, money for anything from logging in, changing and attention to the management and passwords or getting system problems support of its IT infrastructure that it resolved. In fact, the overall cost to has to divert resources away from its

usually required, resulting in multibe dispatched on-site, according to Ga vendor compatibility problems and a Research, Inc., a market research and more precarious planning process., management consulting firm in Effective outsourcing requires infrastruc-

Mountain View, California Global issues are ture and technological driving technology expertise In addition, the internal technology

If third-party outsourcing companies issues facing today's organizations are: are to provide corporate customers exacerbated by issues of a more global with a strategic edge in today's era of technology convergence, they need * blurring of national and international more than just voice or data or networking capabilities. They need to

business boundaries

o much time, money and attention t of its IT infrastructure that s away from its core competency.

coupled with proven expertise in implementing and managing distributed computing environments.

Until recently, few outsourcing companies offered such a comprehensive solution. And those that did charged high prices. Maybe a Fortune 500 corporation could afford a comprehensive management service for its distributed

Corporations are starting to realizehow costly and time consuming it is to implement and maintain custom solutions. However, a supplier who offers per-package solutions - comprised of state-of-the-art hardware and software from a select group of "best-of-threed" vendors - can significantly reduce both deployment time as well as requirement for oncolors star-

HEven the biggest companies are seeing a real competitive advantage in time-to-market, so they

are opting for more quickly implemented and low-

maintenance, standardized solutions.

computing resources, but most of the 60,000 mid-sized companies in the United States could not Instead, IS managers of those mid-sized organizations toiled to create a strategic infrastructure with limited financial and personnel resources, while demands for their time constantly increased.

Standardized solutions offer significant advantages

Today's small and mid-sized companies need cost-effective and affordable solutions that can be tailored to their particular business requirements and then implemented quickly, easily and efficiently. port. With open systems staindardsbased solutions, small to mid-sized customers can gain access to the leading-edge technology used by large corporations without making costly investments in rapidly chang-

ing technology.

Them the biggiest companies are seeing a real competitive advantage in time tomarket, so they are opting for more quickly implemented and low-mainternance, standardized solutions." says: Corg Jacobsen, Seculity Vice Pressults of Bustiness Starlegy and Marketing with 51st., a leader in large-realer systems integration and clienthrever migration based in Ottaws, Canada. "From Fortune no to Fortune noo companies, the gaine now is speed."







SHL, an MCI* company, is a 11 billion company that originated in Canada over a dacada ago. Since that time, tha company has been considered a lander in large-scale systems integration, outsourcing, technology deployment and client/server computing migration. The company is also cradited with having defined the

Transformational Outsourcing services market.

SHL has traditionally focused on three areas of IT axoarties:

-Daployment of desktop services, for which SML provides the hardware, training and support services such as help desks.

-Transformational Services, for which SHL helps customers manage their mainframe applications and the transition to client/server environments.

 Outsourcing, for which SML provides avarything from simple help dasks to staffing and managing data canters.

Basad on customer raquiraments, SML can tailor the solution it offers in any one of these areas or, if a full-service solution is meaded, in all three.

The company has over 100 sales and service offices, as well as six outsourcing centers (two in the U.S., -three in Ceneds, and one. in the U.K.) with a savanth to open soon in Korea. Overall, SHL has more then 6,000 amployaes in 32 countries.

SML was acquired by MCI Communications Corp. in Movembar 1959 and is now MCI's systems integration and IT outsorcing subsidiary. An anterprise nervices offering in the MITICAL property of the MCI and MCI's reportise in extending data and Internet services with SML's Leading in developing and managing client/server solutions for businesses.



Hiring outsid communication for companie tomorrow

The standardized solutions required by this new competitive environment mark the beginning of a big change for the third-party outsourcing business which in turn means more value for customers of this service.

With a standardized solution, the problem-solving process is stream-lined as well. Problems that arise are rarely unique and can be resolved quickly — often by telephone. Faster problem resolution will eliminate the frustration users feel toward a changing technical environment, making them more productive in their core business functions.

Providing a total

Until recently, a mid-sized business looking for a computing and communications solution that could be tailored to its unique client/server environment had fo go to one company for network transport needs and another for network management. "Most companies were unable to reap the full benefits of systems integration because there was no single vendor who could effectively combine the power of communications and information technologies," says Brian A. Brewer, Senior Vice President. Business Marketing for MCI Communications Corp.

e experts to handle increasingly complex s and computer solutions will be the rule s that intend to compete in the arena of

But that situation changed in November 1995, when MCI acquired SHI. The training of the two companies allowed them to create a solution that combines MCI expertise in switched data and internet services with SHI.'s leadership in implementing and managing client/server environments for fortune soo businesses. MCI's solution for managing enterprise networks

Beginning in June 1996, this new service will be offered initially to companies with 50 to 500 desktops and up to 10 servers. The turnkey service includes, as standard offerions, proven open

"Customers today are looking for integrated computing solutions combining networking and telecommunications technologies. Bay, Networks has forged sophisticated business and technology partnerships with leaders: its SHL, and MCI to provide customers with the best furnkey solutions in the marketplace."

Vice President of Cerrier & Integrator Operations.

"We've done much more than just merge the technological elements of computing and communications," says Brewer of MCI. "We've created comprehensive outsourcing solutions designed to solve the special challenges faced by mid-sized businesses across all industries. Specifically, we've standardized what was previously customized - and therefore affordable only to the largest companies -which enables us to bring our solutions within reach of the middle market. And even though our solutions are standardized, they can still be tailored to the specific needs of each customer."

system components such as Compage Prollant servers running either Microsoft Windows NT Server 3,5 or Novell NetWare 4.1, hubb from Bay Networks, and routers from Gisco Systems Standard software applications include Microsoft Office for Laki, with management tools provided by Intel.

MCI expects that customers for its new turnkey enterprise management support services will be mainly mid-sized companies, but notes that large departments of multinational corporations might also be potential customers. the specific needs of each customer.

Even though our solutions dardized, they can still be tailored to

> Infrastructure transition and stabilization

The offering is geared to organizations wishing to acquire, or transition to, a Microsoft NT or Novell NetWare network environment. For those who have existing Microsoft NT or Novell NetWare architectures, this service will eliminate the need to manage the intricate day-to-day operations of running these networks. For those organizations transitioning from another client/server architecture, arrangements can be made to replace the existing equipment with new upgraded hardware and software.

The transition will include a comprehensive audit and assessment of a company's existing infrastructure as the basis for development of an Implementation plan. In this way MCI can provide its customers a significantly enhanced operating environment. Organizations and institutions wishing to embark on a new client/server architecture can lease the basic infrastructure, including servers and software, from MCI. Down the road PCs may be also included in the lease, if so desired.

Whether a company is starting out on the road to client/server or they are well on their way, the experience MCI has gained from its growing customer base will benefit each company through lower annual per-user costs of equipping, operating, maintaining

and servicing their installed hardware and software base.

Proactive systems monitoring and

management Historically, management and support in a client/server environment were often overlooked, due primarily to a failure to foresee the complex interoperability problems posed to users by

this powerful new architecture. Thus, the notion of management and support developed in an ad hoc manner. fragmenting along departmental and operational lines. This fragmented management and control forced users to develop their own informal networks of support, creating invisible costs and inefficiencies in their organizations. Problem resolution was clearly reactive.

MCI's new offering will radically change this situation by providing the foundation for continuous management and control of the desktop, server and network environment with its "over-the-shoulder" support service. This is made possible by the open standard selected for the new service, and by development of sophisticated management and support centers capable of resolving all problems presented by the desktop, server or network. This highly integrated technical support

base will enable MCI to proactively search for and rectify problems before they become apparent to the user community.



Outsourcing has emerged as a strategy used by many businesses to create a compatitive advantage. Today, it is commonly thought of as a means of redirecting rather than replacing resources.

Newy componies seesing noteourching to allocate resources more afficiently, allocate their employees to do the jobs they ware hired to perform. Organizations also use outsourcing to segment functions and tasks that can be handled sors afficiently by a bird-party supert who has achieved present processing towar cost structures and present purchasing power.

Companies outsource to solve tactical, near-tarm issues and to achieve strategic, long-tarm benefits. According to The Outsourcing Instituts, thata are the top reasons companies outsource:

- They do not have accass to the required resources internally. If an organization is aspending its operations, aspecially into a new geography, outsourcing is an alternative to building the needed capability from the ground up.
- They want to reduce and control operating costs. By accessing an outside provider's Lower cost atructure, which results from greater accommiss of scale or another advantage based on specialization, they realize greater savings.
- To contract for resources on an as-used basis rather then through capital expanditures. Outsourcing also permits an organization to redirect its resources from non-core activities to those that better serve the customer.
- Markets, competition, government regulations, financial conditions and technologies all change quickly.
 When compenies outsource they gain the flaxibility to meet changing opportunities.
- To immediately radize the benefits of business process rathginearing by having an outside organization — one already reengineered to world-class standards — take over the neness.
- By working with an outsourcing firm, a company can gain access to new technology, tools and techniques without incurring the costs of chasing tachnology and the training costs associated with each new generation.
 - By having an outside aspert assume operational details, outsourcing lata a company focus on breader business issues, such as customer needs. For many companies, the most compelling resem for outsourcing is that "how to" types of issues are siphoning off huge amounts of management's time and attention.

This proactive approach will lead to a considerable improvement in network efficiency and, thus, user satisfaction. Costs are reduced by eliminating the need for peer support and by centralizing the fragmented support and control facilities. MCI estimates the use of its enterprise network mainagement offering will result in more than 99% uptime for all users. "Today's desktop business applications are absolutely critical to a company's success," says SHL's President. Technology, Bill Trafford, "That's why our goal is to provide a service that offers the highest possible degree of reliability."

End-user support and problem resolution

MCI's offering has been specifically designed to provide the customer user community the best support in the industry. The centralized support facilities will allow for deployment of superior tools and a concentration of resources not available to the vast majority of organizations. When problems do arise, a qualified technical representative can lead the user to a solution remotely, by sharing that user's screen. If the problem cannot be solved interactively over the network, MCI will dispatch a field service engineer from the most appropriate help desk center in North America to deal with it.

Resolution is expedited through MCI's vast knowledge base and expert systems,

The need for pre-packaged deployment and management services will soar.

with an inference engine capable of fully exploiting the information critical to solving user problems. To tay on the leading edge, this vair toolvedge bare in constantly legst up-to-date. The "over-the-shoulder" tool, with the user's permission, provider the ideal platform for disagnosing and resolving problems right on the user's PC. MCI also users a sophisticated database to manage each problem incider, quasartening that all problems are tracked and deall with in a timely manner.

"End users like the concept that if anything breaks, they need to call only one number and we'll get on track to fix it immediately," says Trafford.

Benefits to midsized companies

Market research firms opport the need for per-packaged deployment and management services to rear. As the number of dekstop computers continues to the number of LMRs, Rowerer, LMN interconnection via a WAN is too complicated for many modi-rated companies to manage on their own, Just with an enterprise network management service such as the conpódificated by MCI, these companies will no longer here to very about the will no longer here to very about the research of the conpódificated companing largest district of the control o

 Network management, so companies can concentrate on their core competencies Hardware and software management to ensure compatibility and interoperability and to minimize obsolescence

 Comprehensive support designed to eliminate the hidden costs of peer support downtime, slow help desks, etc.

 Proactive network monitoring, designed to solve end-user problems remotely, before they happen or affect productivity

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Improved end-user performance
and satisfaction

* the ability to share information
ability to share information
ability to share information
ability to share information
ability and easily

* Improved service to clients
Ricing outside experts to handle
-increasingly complete communication

tions and computer solutions will be the rule for companies that intend to compete in the areas of tomorrow. It will allow them to achieve bottom line benefits such as performance enhancement while allowing them to concentrate on their core compe-

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Mac Office update a year off

Users to get tighter links with Windows world

By Lisa Picarille

hen Microsoft Corp. dates the Marin tosh version of its Ofsoftware suite next year, users will have much tighter in-

tegration with the Windows world, Microsoft officials recently acknowl-During a private briefing earlier this month at Macworld in Bos-

too. Microsoft officials were tight-lipped about most everything else coming in the major update of its best selling suite of Macintosh appl Office already has all the Macintosh suites market, according to Dataquest

a market research firm in San Jose, Macintosh users are waiting until next nummer for Office 97. The Windows version will be available by year's end. But the two versions will share 80%

core code, and that is important to users with mixed environments. "Improved file compatibility is key for us because we have Office on the Mac

and Windows," said John Tson programmer/analyst at AMI Leasing Group, Inc., a car and truck company is Worcester, Mass, "We want to be able to

share files seamlessly." Microsoft officials announced the en hanced file compatibility with the Windown version but declined to firsh out the details of what Marintosh users out

expect from Office 97. Oo the Windows side, some of the scheduled improvements include s souped-up version of Microsoft's Schedule+ personal information manager, the in-

clusion of its Internet Explorer browser, an animated form of online help called Office Assistant, a drawing program called WordArt and a streamlined command interface across all Office applicati But Microsoft officials said the forth coming Macintosh update of Office will be "Copland-friendly," which means it will work with the improvements that Apple Computer, Inc. plans to add to its Macintosh operating system. But Office

won't require a new version of the

Mac OS to run, according to Dave Melt-

zer, group product manager for Micro-

Apple recently announced a strategy

hith for its operating systems: the company will release Mac OS improvements every six months rather than issue a "mega-release," formerly called Conland. Because of that shift, Office 97 for the Macintosh won't fully take advantage of Cooland features until further down the mad

But it is unclear whether Office 97 for the Macintosh will take advantage of the improvements Apple plans to add to Harmony, a Mac OS release due in January. The improvements will include several key Apple technologies such as QuickTime 25, Open Transport, Open-Doc and Cyberdog.

Because many of those compete with similar Microsoft products, it is unclear what level of support Microsoft plans to offer for those products in Office 97 for the Macintosh

Whichever road Microsoft takes, it probably won't matter much in the long run, one industry watcher claimed. When the largest Mac software de veloper ignores Apple technologies and still has a virtual monopoly" in the suites market, "you have to question just how

tant those technologies are," said Jeff Tarter, edifor of "Softletter," an industry newsletter based in Watertown, Mass. With little competition Microsult has no urgency to apprade users or adopt Apple core technologies."

SCO, HP release 64-bit Unix interface

Users may receive server flexibility

By Laura DiDio

SCO, Inc. and Hewlett-Packard Co. recently began to ship the ini-tial API specification for their jointly developed 64-bit Unix oper-

The availability of a common application programming interface (API) based on Intel Corp.'s forthcoming Merced chip set family will give businesses the flexibility to run Unix and Windows applications on any HP, SCO OpenServer and SCO UnixWare server, according to Victor Krutul, director of strategic planning at SCO.

SCO and HP are working with or systems vendors to ensure full compatibility between those and the forthcoming SCO/ HP 64-bit 3DA Unix operating system. Those vendors include Compaq Computer Corp., Data General Corp., ICL, Olivetti USA, Siemens/Nixdorf Informationssysteme AG and Unions Corp.

But that isn't quite an industry-wide initiative. There are still other versions of Unix - most notably Sun Microsystems, Inc.'s Solaris, IBM's AIX and Digital Equipment Corp.'s Digital Unix - that will compete with the HP/SCO initiative.

Jean S. Bozman, a Unix server analyst at International Data Corp. in Mountain View, Calif., said the API could ultimately. make Unix a stronger platform for orate America. But she also

in "is a very co ing," she said. "And we'll also have to watch

The first version of the API will define how the SCO/HP operating system will work with the Open Group's Distributed Comtion Environment, X.11, the Open Group's Motif, and network, graphics, management and inter-

Foture versions of the SCO/HP 64/32-bit Unix API specifical will address more advanced feetures such as clustering and security, Krutul said. The API will be available

around the middle of next year, That mile more early as Dwight Wolfe, manager of Unix ens at CNA Insurance Co.'s

Personal Lines Division in Chica er older applications will have to . go. CNA has a heterogeneous en-be modified as users migrate," vironment that includes several flavors of Unix, Microsoft Corp.'s Windows NT Server and Novell. Inc 's NetWan

Wolfe said he would like to be able to run the same applications across all his server hardware SCO and HP managers said their companies are working closely with Intel to ensure that their 3DA 64/32-bit Unix systems will ship soon after Intel's Merced chip set becomes available in

All told, the API "will ultim help Unix assume its rightful role in the industry as the lonerating system that's better suited than Windows NT to run mission-criti cal applications, said 'David Coursey, editor of "coursey.com an industry newsletter in San Ma

poterworkLoom) AUGUST 26, 1996 COMPUTERWORLD

Step for Solaris in beta

Mapping package update en route

Has enhanced connectivity and programming tools

By April Jacobs

Maointo Corp.'s latest version of its desk top mapping package includes enhanced connectivity and prog Mapinto in Troy, N.Y., will offer Mar Professional 4.1 on Microsoft Corp.'s Win-

dows 95, Windows NT and Windows 3.1.x in September, It will cost \$1,295 and sup port Oracle Corp., Sybase, Inc. and Micro soff's Access databases. One early Mapinio Prof user is Berlow Real Estate, Inc. in Buffalo

N.Y., which deals with national reta that need information about property loca Berlow uses the product to give clie

an overview of areas that may be good for them to look into for expansion and see what the competition is doing according to Jan Keller, MIS director at Berlow, "It's always very impressive to clients that we can ... show their competition on a map, Keller said.



Professional "a solid product."

Maolefe Professional lets users in data into spreadsheets and presentat For example, users can ext



al 4.1 to Ph Huers also can capture data stored in Ac-

cess and store and retrieve spatial data from databases such as Sybase and Oracle. Bruce Jenkins, a vice president at Dara ch, Inc., a research firm in Cambridge, Mass., says the popularity of desktop map-ping software is growing among business users as they learn to use it for analysis.

lenkins said Mapinio's strength has ren in the desktop arena; the company aimed 19.9% of the PC-based geographic mation systems market last year. Com Calif., have a stronger presence in the Unix workstation-based market, he added.

New Products

introduced FaxWorks Server 2.0, networ fax communication software for Microso Corp.'s Windows NT.

According to the Sunnyvale, Calif., cor pany, FaxWorks Server 2.0 is a scalable fax mications product for small-to-mid size businesses and departments in large corporations. It lets users send faxes from pages, merge faxes with letterhead and share telephone books - all through one

Features include network ade tion, autoinstallation, automatic fex-b detection, fax board support and exten routing capabilities. Pricing starts at \$2,495 for a 30-us

► Global Village Communication (408) 523-1000 www.globalvillage.com

Smart Systems, Inc. has introduced Safe Rose 95 According to the Munster, Ind., comps ny, SafeBoot 95 lets Windows 95 users rein stall DOS and Windows 3.1 without disturb ing the Windows 95 system. Users can choose to run Windows 3.1 or Windows 95 rach time they reboot their PC. SafeBoot 95 was designed to as recognize and install itself on most Winws configurations. It also lets users man ily specify the location of DOS and

SafeBoot 95 requires 50M to 100M bytes of disk space for a full installation. It costs

(219) 838-3000

F.I.T., Inc. has introduced CADvance 7.0 for Windows, two and three-di-

enter-sided design (CAD) software. According to the Ansheim, Calif., company, CADvance 7.0 includes features for associative dimensioning and texturing, computation and display of object sizes, 255 colors, more than 32,000 kinds of objects, 16 line styles, drawing preview and symbol

It also features eight view-only reference files and an array of information manage-Pricing for CADvance 7.0 for Windows starts at \$1,995

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> "[CS/10,000] gives companies a way to build a project plan on something besides their own experience without having to

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invest in a critical mass of skilled experts." - Richard Hunter. Research Director - Gartner Group, Inc.

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Vendors pull the cloak off object request brokers

It wasn't long ago that object re-Lavon, a consultant at RBS Conquest brokers were every bit as sulting in Baltimore. "Proofe have build it themselves now." An object request broker That is partly because using

(ORB) is middleware that serves as a traffic cop for object-oriented listributed software on a network

essages among objects, so developers don't have to worry shout where on the network each piece of software resides. But only izations that have dislarge organ tributed applications have needed ORBs - or even know what orate secret today," said Zev B.

ORBs to connect applications senses a natural has been technically difficult.

dards has been alow. The Object Management Group, a vendor and user consortium in Framingham, Mass., is developing a set of standards called the Common Object Request Broker Architecture (CORBA). But it has had a tough time persuading

members such as IRM Digital

systems, inc. to work together to adopt the standards. Without these standards, development tool wendors have been slew to support OPR

But now tool leternet and object technology weadors are actively looking for ways to make ORBs easier for corporate developers to

use IRM and Sun last week said they will work together to ensure that their tools and ORRs will work together. The agreement follows a simi

ware by year's end. Netscape Com Corp. last month announced it will lar deal is May among IBM. Apple add an ORB to the next ver Computer Inc. and Iona Technolof its Navigator World Wide Web

Some development tool vener. That will put ORBs on millions dors, including Powersoft Corp., of users' desktops by this time are also working to link desk

> want even more applications to come with CORBA-compatil serfaces - especially large scale applications That's exactly the message we

vant to be sending to vendors that we won't accept proprietary interfaces into their products, said Carol Burt, technical director at BellSouth Corp. in Birming nam, Ala. "We want these to be open systems."

Assuming the Lotus position

Third-party vendors develop support for Domino By Tim Quellette

lust add water

man resources library

mution and policy manuals

Third-party software vendors are starting to deliver development and other kinds of tools for Latus Development Corp.'s integrated Notes/Web server, called Domino. Doining is a Notes server module that

natively supports the Internet's Hypertext Transport Protocol and Hypertext Markup Language protocols. As a result. Notes servers can act as World Wide Web servers, and users have the notion, of accessing

Notes data from a Web Infolmage, Inc., (a Notes developer and in-tegrator in Phoenix, is Company phone directory shipping Instant I-Net, a suite of application temfoh postines, henefits plates (see chart) that the vendor claims lets Document repository users get Domino-based anet applications up and running faster than

if they developed their

Mesowhile, Brainstorm Technology, Inc. in Cambridge, Mass., this week will anance Virtual Help Desk for Notes. This is belo desk software that lets users log service reggests to information systems mansoers via a Web browser, using Domino as

the management engine. The applications are important because there won't be company-specific business gains with Internet use unless users combine the Web with applications such as Notes, analysts said.

"It is one thing to drop a browser on eservoge's desktop and set up a home page and think you have instant productivity." said Gerry Murray, an analyst at Interna-

tional Data Corp. (IDC) in Framingham. Mass. You really need the discipline of susperthing like Notes [and Domino] with forms, data, etc. - to make the later. Users can expect a lot more where this

An IDC survey completed earlier this month found that 95% of Lotus' 12,000 business partners expect

to provide some sort. of service related to Domino, These include integrating Web pages with Notes databases, using Notes as a Web publishing tool, creating Internet/intrinet bridges and extending legacy profications to the Web.

One user on the In-Reference knowledge base stant I-Net discussion Discussion focum cross at www.infoimace. com saw the possibilities that Web and Notes inte-

gration could bring. 'I have been recently pushing Domino as our intranet solution to little real, be said. "After management caw what was possible with Domina and Instant I-Net, they all of a sudden started to really nov attention to me

Infolmage plans to deliver other plug-in intranet applications later this year. Virtual Help Desk lets geographically panies have one central belo desk. IS staff can then make the company's IS knowledge base - stored as a Notes database - available to users over the Web, Instant I-Net costs \$996 per Not server, Virtual Help Desk costs \$7,200 per server for an unlimited number of users

ActiveX components ease Notes customization Ry Shorne Gandin

plans to add an ORB to its middle-

Users have six new ways to cantomice Notes thanks to a set of software applets Lotus Development Corn, recently announced. One user said this is a hot m. lease. But an analyst said Notesspecific components can be a ma-

ior drawback. Cambridge, Mass-based Latus started shipping a set of ActiveXbased software applets two weeks ago. The Lotus Components Starter Pack includes six core components. A component is a re-

usable software "chunk" that can be loaded into an end user's Notes act The Notes meau will contain six components - chart, comment, draw/diagram, file viewer, project scheduler and spread

short - and a template builder. Product boost

The components are the type of thing that makes Notes a robust application," said James Wilcoxon, CEO of Rockville, Massbased Wilcoxon Construction Co., which installs commercial swimming pools. You have a menu nitting un there, and if you want to compose a chart or something, you don't have to leave Notes

But David Yockelson, an analyst at Meta Group, Inc., said although the components will save Notes users time, they can't be used outside of Notes - at least not yet. If an end user wants to use the new components, be must run Notes.

"It's a good start," Yockelson said. But "it's limiting, at least at first, because you locked in to Notes. Notes users won't be out off obvioush: "he said. it's an enty choice."

pext year applications to CORBA networks. wersoft is working with lotte on ways to let applications built with But some corporate developers the PowerBuilder visual develop-

ment system easily include an And Open Environment Corp. in Boston, which will soon merge with Borisol International, Inc.

ts Starter Pack, a reliection of six sts. may make Notes more re

The components are for only 32-bit plat rms that run on Windows 95 and Win dows NT Peter Cohen, component product manager at Lotus, said the company is focusing on moving the components to other platforms, specifically the major Internet rowsers, within a year. Lotus also is work

ing on a few more components, including one for data querying, Cohen said Sondy Taylor, an analyst at The Standish Group International, Inc. in Dennis, Mass. said making the components available to Notes users will empower computer-savey workers. "A lot of folks are computer liter ate, [and the components] give them a lear up" because they are able to customize and thus more effectively use Notes applica tions, she said. Lotus components may make life easier for IS managers who have to do the purchasing and integration. "If I have a choice of taking a product from mosny A and a product from Company B, as opposed to buying two from one com pany, guess which one I'm going to pick," Taylor said. "If they're already using Notes



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Mobile agreement

Wireless carriers' billing accords further CDPD

By Mindy Blodgett

Another piece in the CDPD puzzle fell into place in recent months any most of the major carriers signed interpolability agreements. Those agreements allow users

to roam among coverage areas easily.

Analysts and industry observers said the agreements are an impotant step in moving along the implementation of Cellular Digital

plementation of Cellular Digital Packet Data (CDPD), which supports short, bursty transmissions via the Internet Protocol-based wireless packet technology: The interoperability agreements will make CDPD more attractive to

The interioger analysis agreements agreement with make CDPD more attractive to users who seek to use wireless data communications between cities or regions. Customers can now use wireless data devices to send electronic mail or short mensages between areus with CDPD coverage without worrying about billing or needing different moderns. "The bigs news lately with CDPD

is definitely the interoperability agreements," said Roberta Wiggins, as analyst at The Yankee Group in Boston. "The major carriers are pretty much hooked up, which does bring us closer to some kind of nationwide communica-

Wireless carrier, ager 58









MCI links data/voice network to Mexico after monopoly ends

By Kim Girard

U.S.-based multirational companies that do business in Mexico now have access to a unified data and voice network that links

Avantel, a joiot venture between MCI Communications Corp. and Mexico's largest bank, Grupo Financiero Banamex Accival, this month unveiled a 3,400 min fiber-optic network that links MCI users in the U.S. to a nearly identical network in

MCI is the first long-distance carrier to ofter switched long-distance service in Mexico, which just passed a law that allows competition with the 47-year-old long-distance monopoly, Telefonos de Mexico (Telmex). Before the breakup of the monopoly, providers were forced to offer services over dedicated circuits

ofter services over seducated circuits lessed from Telmez.

Avantel offers customers services that include private lines, £25 packet networks, frame relay, dedicated access to the Internet and policifiz service.

Sue Taylor, manager of triccommunications and office augmention at Norsed Corp., a mobile computer maker in Cedar Rapids, Iowa, said the company is considering using Anastel to link a sales site in Mexico City to headquarters win a framerelay link. Employeeuat the site currently

dial is orders to lows.

Frame relay should be less expensive
MCI, seev 58

No standards, no products, but lots of hype

Tigahit-gaga

By Bob Walso

ven though vendors have been racing to develop products for the latest high-speed LAN switching option, Gigabit Ethernet, users are wary of the

this consumer.

The dist of the Gigabit Etherslet marketing drams has tended to drown out the fact that there are no standards, products aren't due until at least year's end and Anyachrunous Transfer Mode.

(ETM: distinguishments billion.

Users mid Gigabit Ethernet, which operates at 1G bit/sec., prumises a means to handle increasingly heavy traffic loads in backbone networks. But they don't are it as the big rival to ATM

that it has been made out to be.
"Gigabit Ethernet is certainly something most everyone will.

grow into, but ATM is much more versatile, And although its may end up costing more, it has capabilities that Gigabil-Ethernet lackat," said John Boyd, chief networking technologist at Northeast Utilities, locthe Berlin, Com, power company uses an ATM setwork that can handle woke, data and sides treeffe.

quality of service functionality, which lets users set different priorities for sending voice, data and video and which

and video and which guarantees bandwidth for those transmissions. Etherant technology was designed fire data and can't guarantee performance for data and video when they run simultaneously at high speed. But to Gigabit Etherant's credit

But to Gigable Ethernet's credit, users see it as premising. That's became it gives users a migration path from shared Ethernet to switched Ethernet to Fast Ethernet to gigabit speed, And that's good news for Ethernet users who want to support more bandwidth-intensive data applications

without painful upgrades.

Users will get their first good look at Gigabit Etherner products at Networld/Interop 36 next month in

Users can expect to see Gignbit
Ethernet adapter cards, which they can
use to connect to servers, and Gignbit
p Ethernet modules that will enable
high-end data center switches to past
lower-speed traffic on to Gignbit Ethernet backbone networks.
Gignbit Ethernet pricing is still up in

the air, as is a standard for the technology — on which the Gigabit Ethernet Alliance, a wendor association, is hard at work. Some users are cautiously optimistic

Some users are cautiously optimistic about the fledgling technology, but they do have several concerns. "Gigabit-Ethernet is a great idea,

"Gigabit-Ethernet is a great idea, but my fear in that expectations will be unreasonably high," said a network manager at an East Coast university. "Just because products will ship doesn't mean that everything will be



John Beyel of Northeast Utilities: Gigabit Elkernet may be less extensive than ATM, but it isn't as versatile

in place to handle the bundwidth, she said, referring to cabling, drivers for major operating systems and any changes that must be made to switches.

Another user concern is how firms—
will te together Gigabit Ethernet camh pus networks over the wide area.

Right now, all the carriers are focused
to a ATM [wide-area network] services
but don't have an interface for Gigabit
to Ethernet," Boyd side.

Nonetheless, research firm Dataquest in San Jose, Calif., is builled no the technology. Dataquest recently predicted that worldwide nales of Gigabit Ethernet products will reach \$2.9 billion by 2000.

(manuscreensterworkscom) AUGUST 26, 1996 COMPUTERWORLD

Network tool vendors team up for integration

By Patrick Dryden

vators of complex networks are tired of trying to make all their favorite management tools work together. They prefer to see key wendors handle the in-

that wish is coming true for or-ganizations adopting the Trool Management Environment (TME 10), a leading systems management suite and framework for aming huge networks. Key tool weaders met re

in an effort to make their software work with TME 10 as part of a que vendor partner program Inc., which IBM ac-

ovired to focus and lead its mana The venture differs

from similar efforts by competitors and the over Tholi IBM because it approach that promises s more open process than typical wendor-led

integration programs. Through nine workng groups, the mem bers of the 10/Plus sociation are defining the interfaces that able complementary gement products

That mesos a TME 10 user could choose event-handling software, for example, from members such as Boole & Babbage, Inc. Maxm Systems Corp. or Tiroli

and be sure the tool could pass etwork alerts to the troub ticketing module from Tivuli or another member. Typically, one vendor pushes ts own integration standard, or consortisms try and fail miser-

ably. This is a gentleman's agreeent among a cure group of comtitors to create workable terfaces," said Clare Price, rearch director at Gartner Group. Inc. in Stansford, Conn. Early now we have to deter

Streamlining the process is copying the approa as to help management products to its system mand. Here's how it u

- Tivoli and vendors of complementary or competing products form working groups. such as one for network tools.
 - Members, including 3Com Corp., Bay Networks, Inc., Cisco Systems, Inc., Novell, Inc., SunSoft, Inc. and Tivoli, met in June and again this may
- They are defining a basic application programming interface for passing ner ogramming interface for passin erts and data through TMF un
 - 4- Tivoli tests and certifies products for

No longer can any single plat form overcome the complexity of managing distributed environ ments, Price said. Instead, users should determine their manage requirements, choose matching tools and integrate

Tirofi's approach would help Wells Fargo & Co. in San Franon whose staff selects Trest-ofbreed tools" to manage systems and networks but struggles to make them work together, said Peter Martin, vice president of en-

> mine if we can link a rilat form like Tivoli's with other products and build the bridges ourselves. We prefer to see individ ual products architected openity to work together easily so we can aut mate management functions through fewer con soles," Martin said.

TME 10 user Charles Schwab & Co. in San Francisco hopes to see more vendors supply out-of-the-box support amone their took, said Dave Kessell, vice presi

dent of infrastructure projects

the utility uses CDPD technology to monitor energy usage and ensure correct pipeline pressure and flow rates during energy demand peaks. Columbia Gas uses Bell Atlantic Nynex Mobile's CDPD service to transmit infor mation from measuring points

Mobile

throughout its systren to its local substation comcommunications puter in Bethe Park Pa. and three to its monitoring center in Colum-

hor Ohio We are getting the same per formance we gut when we used leased (selephone) lines, and it's more cost-effective." Rivers said of the technology. "And we only

preded to make minimal collware In Sep Francisco, Yellow Cab Cooperativy, Inc. uses CDPD from GTE Mobilemet to verify credit-

card transactions in cabs. Yellow Cab has been testing the technology in five cabe and will expand the pilot to 25, according to general manager Nate Dwini. "It works protty well. We've had a few hone ups but nothing major," he said

"No single vendor can do it all," For NationsBank Corp. is Char-

lotte, N.C., a key attraction of cis Scybold Group in Boston.

TME 10 is its support of tools from pants can define a leading vendors, said James Brown, senior vice president of network pintforms. "We hope to just ug tools into one

framework so we can paint the overall picture of the network and systems bias awa

Twoli's independence has improved IBM's abili to recruit partners, said Jack Brown, senior director of dis tributed systems at associa sber Boole & Babbage in San lose Calff.

also plans to use Avantel's tri

to see improved resp

reliability and quality

"It will lower our costs to de usiness in Mexico," Davis said.

"I do see 5% to 10% savings. I hope

Although frame-relay cons

tions are linked across the border.

many U.S. companies with manu-facturing plants in Mexico don't

need them yet, according to one

Corp., a consultancy in Voorhees, N.J., said many corporations con-

sider manufacturing plants the

fices and demand little more than

internet access to exchange elec-

tracic mail. That may change if

business traffic increases dramat-

ically and a uniform data com-

nications system becomes

"If |the North American Free

Trade Agreement) creates a

North American manufacturing

megaplex, that megaplex will

we'd be able to compete without them. [But] I don't think it's coine

have to have uniform commun

tions," Nolle said. "It's doub

invalent of their U.S. remote of

Tom Nolle, president of CIMI

Tivoli's approach will result in quick benefits to users, said Sue Aldrich, senior consultant at Patri-

The THE to snagement specification that's reasonably practical for each of them to im ers, Inc., Carell pleasest quickly," dr" Constant ComerCorp., Lega

"Users will con tipue to need mult ple tools, but TME certified applica tions will at least extion," said Tim

Wilson, management analyst at Decisys, Inc. in Sterling, Va. Then maybe they won't har to boot 11 different consoles to find the answer to one opestion." Wilson said.

MCI links data/voice to Mexico CONTINUED FROM PAGE 51

to be a factor for another two to

d is more reliable. Taylor said MCI has already linked its "The frame cost is going down." she said. "I personally think it needs to go down more." Gary Davis, manager of data HyperStream frame-relay service to actworks in Canada through nts with curriers there. About 200 U.S.-based corpora and wide-aren networking at a ions are potential customers for Houston-based computer firm that has sales and marketing of cross-border network service said Richard Perry, a senior engi fices in Mexico, said the company er at MCI who works on th

Avantet's network extends 3,400 miles and links commercial and residential users in more than 30 cities in Mexico to the network in the U.S.

access to Avantel's: Frame-relay net linked to MCI's

* X 20

 Dedicated Internet Multifiex capabilities

Although MCI is first, it isn't the only company to enter the fray. Alestra, a competing part nership, comprises GTE Into tional Telecommunications, Inc. AT&T Corp. and Alfa, one of Mexico's biggest corporati But Alestra has yet to brench a

Sprint Corp., a Telmex part iso plans to offer cross-border

Wireless carriers' agreements

CONTINUED FROM PAGE ST This is an important factor. but there are others, like applica-The latest agreement came last south when GTE Mobileset, Inc. tions and cost-effective end-toend solutions and awarrness. and ATAT Wireless Services

agreed to interconnect the billing for their wireless data networks. That will enable customers to send and receive data regardle of their location within each carrier's coverage area. The pact will affect 65 million potential users in

34 markets across the country. It will take effect in October. itech Cellular Services and Bell Atlantic Nynex Mobile, ed interbilling agreeme

ring the course of the past year. Making it easier for users to tween service areas by facilitating the billing system is an important step to speeding along implementation of CDPD, which hasn't caught on as expected. The interbilling agreements are key, but they are just one element needed for CDPD to catch fire according to industry analysts.

needed for acceptance of CDPD," said Das Merri mm, as engine at Gigs Information

Group in Cambridge, Mass

Officials at the carriers said they hope that with interbilling eements in place, they can begin to sttract the office users who re so far staved away from the chnology. Mobile professionals are more interested in nationwide reless capabilities, according to

industry analysts, and the interoperahility agreements make nawide service more of a reality. In the meantime, users in vertical markets, including public safetr agencies and utilities, are in

creasingly signing on to the Aggel Rivers, a comm

tions engineer at Columbia Gos and Electric in Pittsburgh, said

COMPUTERWORLD AUGUST 26, 1996 (www.computerworld.com)

Navigator + NetWare = roll-your-own intranet

SYDNEY AUSTRALIA

Enabling Novell, Inc. LAN servers to act as anet platforms is a painless way to leverage extra business benefits on an existing network, according to officials at Austra-lia's New South Wales State Rail Authority. But State Rail officials said closer cooperation between Novell and Internet between

any Netscape Communications Corp. would deliver even more benefits.

State Rail gained cost-effective entry to

an intranet environment by mounting No-well's Internet software on NetWare 4.1 servers, said John McNamura, intranct manager at Rulls, the authority's informstion systems group. An eight-month pilot project convinced State Rail that replacing its paper-based publications and manuals th the intranet's faster, more efficient extrenic distribution processes delivered

paificant savings, he said. Key to the decision was the ability to eas ily layer internet technology on top of the authority's NetWare 4.1 servers, which pt new hardware investment to zero.

At the same time, State Rail is chafing a at it sees as slow progress by Novell and tacape toward implementing Netscape's iteSpot range of specialized servers, inng catalog and mail servers.

We don't want to buy NT or Unix serv ers, but Novell needs to understand Suite Spot is the sort of software we are after, and we would like to see some results' from the extended licensing talks taking place be-tween Novell and Netacape, McNamara

Important for an organization whose 20,000 staffers are spread across 150 Net-Ware servers, NetWare Web Server integrated well with Novell Directory Services.
Railis is using Novell's LAN WorkGroup
Version 5, Web Server, the ManageWise

wide web browser Netacape Navigator.

NetWare Web Server hurns NetWare servers into publishing platforms for Hippertent Mackup Language (HTML) pages accessed by State Rail staff who log on to the network from 5,000 PCs around New South Wales. McNamura said State Rail was satisfied with NetWare Web Server's ease of use and performance levels.

ered on its role as an in-bouse dition engine to replace the slow, exp process of sending out thousands of

process or menting out unoranteed of copies of paper mentors, McVisamars said. Fetuter plans call for paper integlated effectories to be everplaced with a Web server. The intranct will also be used to carry in-brase job fatings and contact details on State Raffly 20,000 employees, complete with photons and job titles, he maid.

Beyond the LAN, State Raff is working to

Beyond the LAN, State Rail is working to put a Web Interface on its corporate data by giving its Univys Corp. 2000 mainframe the ability to fairlysion as an intracet server. It is testing the Univys Anticos operating system module, which receasts queries against the Univys database into ETML

The intranet pilot project absorbed about two man-months of effort. Easing the chore of creating Web pages were tools such as Info Access HTML Transit, which word occurrent inhor-saving tool for State Rail was Map Edit, which embeds Web links in pages that start life as Microsoft Power

ong writes for Computerworld Australia.

Sagent Technology, Inc. has introduced Data Mart Solution, an integrated tool set for populating Windows NT-based data

aru. According to the Menio Park, Calif., impany, Data Mart Solution moves criti-ACS Software, Inc. has rolled out Auto-EDMS 4.0 for Windows, a document, drawing and image management system deigned for workgroups and multisite

According to the Lomita, Calif., com ny. AutoEDMS 4.0 implements documen agement through user-designated screens that contain textual database infor-mation and graphical views of the managed files. It has document management isstures that include check-in/check-out, revision control, automatic file naming and file activity audit trails. It has built-to viewing and printing support for more than 160 file

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il information closer to end users and lets been share the information and collaborate

It was designed to enhance the performance and maintenance of data maris by featuring centralized control, workgroup ality and support for bus

Data Mart Solution gives deve ingle system for all data mart tooks, such as populating the data mert from vari sources, creating metadata and provend users with tools to access, distriand collaborate on the data.

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The Internet

Providers struggle as 'net traffic grows

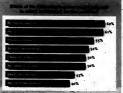
nternet service providers that sell unlimited Internet access to consumers at baryain-basement prices are largely to blame for souring traffic volumes. This overload is making it tougher for ess users to get the reliability and performance they need, analysts said.

The problem occurs when businesses buy Internet access from providers that also cater to the \$19.95-per-month con-

These providers can't afford the network upgrades necessary to give busi-

quality of service "At \$19.95 a month for unlin age, it's not in the iservice pro best interest to do anything that would boost usage [such as support of voice, video and multimedial because it's moncy they have no way of recovering," said

Tom Nolle, president of CIMI Corp., a consultancy in Voorbees, N.J. The options for users are straight forward: Choose a big Internet provider with deep pockets; opt for a smaller and often cash-strapped provider - most of which are likely to vanish, analysts said; Internet providers, page 65



Certification classes are popping up for webmasters

Ry Kim S Nash

Although they are still sperse and undefined, a handful of formal tificate programs are popping up for would-be webmasters Just like Novell, Inc. NetWare

gineers or Oracle Corp. database administrators, information systems workers can earn a webster license from these fiedgling programs.

But unlike those more mature licensing programs, webmastery doesn't have accepted minimum technical requirements. Certificates aren't meaningful, some critics say, if there are no wide spread definitions for what a web

master should do. Some professionals who call themselves webmasters barely know Hypertext Markup Language (HTML); others are Unix sards who can configure World

Wide Web servers in their sleep. Yet some computer training ompanies and software vendors have started to offer certificates in various aspects of building and maintaining Web sites.

Although webmastery will nev er be as quantifiable as, say, learning NetWare 4.1, there are some Web-related skills that can be nicked up in classes

knowledgement of competence

will help potential webmasters dis ferentiate themselves in a field where almost anyone who can put together two lines of HTML code

can call himself a webmaster, said Manish Patel, a marketing manag er at Net Guru Technologies, Inc.

"Certification is a great idea," said John Robb, an analyst at Forrester Research, Inc. in Cambridge, Mass. "But right now, it's the Wild West."

Formal braining programs will catch on, Robb said, partly be-cause of the big investment IS is expected to make in external and

"If you don't use certified develsers, then you could have problens with quality or security," he said. "If you run in to those prob ns, then it's your own fault."

Net Gure launched an Internet tration class early this year. Students learn how to set up and troubleshoot servers

protocol services as well as basis Internet security, among other topics. Roughly 10 people have taken Net Guru's Internet Web ester Engineer course, but not all have earned a certificate. The urse costs \$2,125.

"We've failed people," Patel said, "If they don't walk out with a core level of understanding, we're not confident they can do the job. We don't want that."

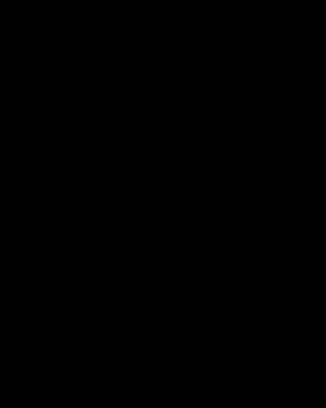
Art is as large a part of being a book-learned knowledge, according to those who do it for a living. Therefore, estery can't be gleaned easily in

I have a dim view of the whole certification idea no matter what it's in," said Tim Evans, an inde pendent Web consultant in Wilmington, Del., and author of Building on Intronet (MacMillon Computer Publishing, 1996).

Certification programs "m sure not necessarily your skill but your ability to memorize fac and take tests," Evins said. A better way to screen wo

be webmasters, he said, is to dearelop a hypothetical problem for them to solve. The logic and experience job candidates show by working through a tough situs tion "tells me much more than





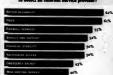
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By Kim S. Nash

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Webmastery 101

Programs for building betti masters aren't offered be every computer training outf for wehmaster training on earth

is wear Net Guer's W stes how to write simple

es on setup and manage nt, Web servers and file t protocol servers. The recently finished a stint at Mi crosoft, teaching Microsoft's

course is more techn

lers simple HTML training but little else related to creating or maintaining Web applications.

ter cert ss, similar to its Certif are Engineer prop vell plans - Web As b Server Manager start until next month. Only East Coast locations will offer them for details. In the me Ware A.1 and TCPRP Adm

- Fire S Meets

for domain name and file transfer protocol services as well as basic internet security, among other topics. Roughly 10 people have taken Net Guru's Internet Webmaster Engineer course, but not all have earned a certificate. The course costs \$2,125.

"We've failed people," Patri said. 'If they don't walk out with a core level of understanding, we're not confident they can do the job. We don't want that."

Art is as large a part of being a webmaster as book-learned knowledge, according to those who do it for a living. Therefore, mastery can't be gleaned rasily in

a risseman "I have a dim view of the whole certification idea no matter what it's in," said Tim Evans, on inde jendent Web consultant in Wilmington, Del., and author of Building on Intronet (MacMillan Computer Publishing, 1996).

Certification programs "mea sure not necessarily your skills but your ability to memorize facts and take tests," Evans said.

A better way to screen wou be webmasters, he said, is to dewroop a hypothetical problem for them to solve. The logic and experience job candidates show by working through a tough situa tion Tells me much more than

any certificate," Evans explained. erid.com) August 26, 1996 Computeriwonup



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This system handles all the pack

we don't have to deal with it

slowing down," he said.

Choosing targets HydraWeb provides more effi

routing system that should ship next month Start-up HydraWeb Technologies, Inc. is testing its HydraWeb

routing software, redirects World Wide Web tridlic among clustered servers.

HydraWeb determines which server can best handle the requests that bombard busy sites. And it lets managers fix and add servers without disrupting site

"If HydraWeb works as prom ised, we could have one line into one firewall and maximize all our available hardware behind it." said Ken Alexander, vice president of the Internet Banking Systems group at Long Island Seret routing for you at a low level, so inus Rank in Mabrille N V Alexander-said he is easer to through scripts," the heta tester beta-test HydraWeb -with the

said. HydraWeb so far has imbank's four Web servers proved Web response times, ac The servers provide inform cording to this tester. "but we tion on mortgage. haven't really cranked it up yet to rates and services make sore we can cover the peak **Routing software** and also support a multiple-listings His dévelopment group needs

service, which has supplied more faster response times for speedy than a million house photos since new Web applications such as its launch in June games. With this system, we can "We've already had one proce route players over to another ma chine to keep them from ever

sor fail on a server, but with HydraWeb, we could have kent running," Alexander said. He said he iso't aware of other products that provide that kind of load baiancing and scheduled main

cient handling of Web requests in current domain servers, ac rding to Raj Sharma, presiden A beta tester at a global com rationa service provider, of HydraWeb Technologies in who asked to remain anonymous New York. As an intelligent rout

Availability: Sept. 4

Price: \$4,500 (two servers) to \$30,000 (15 servers)

utes Web traffic to the best availa mal response and fault tolerance. Manage remove servers without changing the TCP/IS

er, HydraWeb tracks the performance of each Web server so it knows the best target before forwarding incoming requ

Domain servers just direct traffic to the next available server in the queue, Sharma said. Even if patched to enable so load-balancing, domain servers

assume all servers have the same shillties, he said Many of our birb-traffic cus ners need a better way to balance the load among different types of servers," said Brad Hotick, marketing vice president at sites. "Their servers get treated the same right now, but Hydra Web is a smart solution that can roote traffic to the best machine, Husick said... Because Web sites are growing in business importance, manag ers are seeking tools to improve

ment subvace for Web

service and maintain a constant HydraWeb won't be unique for long, said Clare Price, manage

ment analysi at Gaetner Group, Inc. in Stamford, Conn. HydraWeb should ship Sept. 4. NetGravity, Inc. in San Mateo, Price runtes from \$4,500 for tw servers to \$30,000 for 15 servers. es from \$4,500 for two Calif., a developer of advertising

Web security is key to HP's 'net strategy

By Jaikumar Viiavan Hewlett-Packard Co. is focusing heavily on security issues to make it a key differentiator in the crowded Internet market.

For example, at the recently concluded HP World show in Ann heim, Calif., the company spelled out a series of long-term initis tives it is taking to make the World Wide Web a safer place in which to conduct business

Prime among them is the develent of several technologies. including a reliable and secure operating system, technology for inidual authentication over the Internet, secure and centralized cess control and cryptographic technologies.

Finding its focus HP's focus on such Web-related security issues and technologies addresses a vital user concern and could prompt other vendors to focus on similar issues, ana-

"A lot of the vendors out there are trying to be all things to evervone," said Carl Lehmann, a program director at Meta Group, inc. a market research firm in

"HP has a good focus in a market that is very concerned about security" of its Web-based a "For HP to come along and be

one more company that says, We are here, we recomize the Internet, and we are here to provide Ipternet servers,' doesn't make sense," said Lewis Platt, CEO at

Instead, the company will focus on delivering a range of products and technologies that will let corporations accurely migrate busi sucritical applications to the

"Security is one of the most im rtant festures. ... I would real that as a pretty much high priori

ty" for Web-based commerce, said Michael Kapsak, systems manager at B. F. Goodrich Co.'s Aircraft lategrated Systems division is recenes, Vi HP's road map ties together series of key alliances and into

net-related announcements thu the Palo Alto, Calif., company has made in the past several months They include the following: The acquisition in February a SecureWare, Inc., a Web security and operating system vendor. The

two companies are developin software that will let organizati end sensitive data over the Web and provide access control and etworking security.

tion Server in April. The first of a projected line of similar hardware products, the server sosticates users and controls ir access to information on the work. The product is aimed at nets, but HP will expand the

ploey to the laterant by art cards," which will form the basis of user-level security, ac-

s and authentication Ira Goldstein will be in charge HP's Internet strategy. Goldstein was recently appointed to its video-based education semithe newly created position of chief nacs over the internet. Internet technology officer.

Goldstein is rejoining HP from the Open Group Research Institite, where he served as executive vice president and chief scien-

Internet providers struggle

CONTINUED FROM PAGE 60

or become your own internet pro-Larger providers that focus on higher-margin business users are more likely to have the financial staying power needed to survive and improve their networks to offer more services and feat Many providers, such as PSI Net, Inc. and Ulinet Technol-

ogies, Inc., have already left the consumer market. Others, nucl as BBN Planet, never sold to conera to begin with ANS, an America Online con-

puny, and Netcom On-Line Comnications Services, Inc. sell to a mix of custor Some Internet providers differ tiste their services based on measured usage vs. flat rates, ge-

ography and time of day. But none has the network infrastructure needed to offer users guaranteed referrice options. And at is keeping some users away One such user is the U.S. Chamber of Commerce in Wash ington. The organization would like to put its national magazine Nation's Business, online and pipe

We'd be willing to pay more for re reliable basic service and guaranteed availability of high bandwidth pipes for video," said Peggy Morgan, manager of MIS and finances at the chamber of

ders' "best effort" isn't good enough today, she said.

Jordan Becker, vice president of network service at ANS in Elmsford, N.Y., said quality of ser vice is something his company will probably offer in the lature but be wouldn't elaborate

sociated with Internet phones and running multimedia over the Internet, analysts said few if any providers have the technology to ensitive traffic, let alone guaran tre quality of service

nk or swim

Analysts agree it is sink or swi ne for Internet providers. Me Service will contange to de-

grade if more money isn't spent to uperade feervice provider) perworks," Nolle said. "Rather than continue to sink, [the providers] will first stop spling internet accros la concomers "

with the service they receive and have become their own internet A dearth of high-speed Internet

access lines, for example, forced the University of Southern Californis in Los Angeles to join with area businesses to buy their own 45M bit/sec/lines to the litternet. Morgan is considering doubt the same thing with a T1 line.

(www.computerworld.com) AUGUST 26, 1996 COMPUTERWORLD

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Corporate Strategies

Banc One checks out Web

Check fraud, account errors targeted with verification service

By Mitch Wagner

launched a World Wide Web-based check imaging and verification service for tive security technology to quard proprietary corporate infor-on over the Internet. OneImage was ed to help Banc One customers -

get a handle on check fraud and "All our customers need is a Electronic Law, a security both

browser and access to the in-ternet, and they can have the that we have internally," said Rex Plouck. age product manager at Benc

ited from customers' accounts automatically. But sometimes, customers want to look over unusual checks - those for very large amounts, for example — be-fore allowing them to be deposited.

Until now, Base One has sent checks to customers by courier or lax. "We'd have to go through all sorts of contortions," said Steve Dieringer, a vice presi dent at Banc One.

Using Onelmage, employees of Banc One's customers can now-log in to Banc One's Web servers and check out an image of the exceptional checks using any browser. Once the image is on-screen, the employees can make a "pay" or "iso-pay" decision on the check.

crypted using Secure Sockets Ancess, server security soft ware from Open Market, Inc. in Care

bridge, Mass. The OM-Ancess software confirms that users are who they claim to be and that they are permitted to access the services they are requesting. OM Aucess then issues a ticket, or encrypt data string, that lets users access t

Key from Digital Pathways, Inc. — which Base One is-sues. The key is a gadget the e of a calculator and con-

ng allowed to use the One-One, in Coh

the first bank to put applications on the sternet. About a dosen banks have been agressive in this regard, including fells Fargo Bank and Bank of America.

deed, Base One could be the first ery to one token-based security in security for a transaction."

an Internet commerce application, said security analyst Winn Schwarten, presi-"One of the biggest problems you

have in electronic commerce is user au-thentication and identification," Schwartau said. "By using any kind of authenti-

Ekco gets housewares in order with AS/400 data warehouse



By Michael Goldberg PRANKLIN FARE. ILL

nks to its AS/400-based data warese, manufacturer Ekco Group, Inc. knows that turkey baster sales peak at Christmas, not Thanksgiving. This knowledge, in turn, is helping retailers resp double-digit increases in the sales of Ekço's housewares.

But there is some controversy about the ability of the venerable AS/400 to function well as a data warehouse. Some analysts question the fit of the AS/400 architecture to the task

It's working
That isn't stopping Elecu, which has also
discovered that the popularity of Mexican
cuisine — particularly refried beans — has signaled a rebirth in sales of the potato

This and other information have been gleaned by analyzing the company's his-torical rales database and comparing it with consumer spending data from A. C. Nielsen Co.

Legal eagles look at year 2000

Stephen M. Honig and Theodore Grossman

lem is finally getting some high-level management at es of fixing it. Many of m tise of IS professionals

There are no court cases yet that establish the legal ground rules for assessing co mer liability. Although spec ic legalities will depend on local



"licensed," it is covered by Arti-cle 2 of the Uniform Commercial Code (UCC), which deals with the rights of buyers and sellers of tangible goods. Your rights re-volve around whether your vendor breached a sales agreement with you, the user.

am) AUGUST 26, 1996 COMPUTERWORLD

IN an industry where community rise and fall oversight, it's nice

IN an industry where companies rise and fall overnight, it's nice to know there's one with something behind it.



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The AcerNote" Light offers all the features that are needed to take a job on the road-and does so at under six pounds. There's a centrally located touchpad and plenty of room to expand to 40MB of memory, as well as Sound Blaster 16-bit compatible audio capability.

But perhaps what's even more impressive is what the AcerNote Light doesn't offer. Like all that extra weight we've managed to lose. Not to mention all the fat we've trimmed from the price.

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Legal eagles look at year 2000 issue

CONTINUED FROM PAGE 89 guage that describes the soft-

ware as performing all the customer's needs beyond the year The software contract also may contain an implied warranty that the software has bee sold by an expert weder upon

whom an inexperienced cus-If a warranty has been violated, why can't I just

tomer relies

The UCC limits the statute of ons for asserting a claim to four years from delivery. even if the defect manifests itself sears later

The only exception is for warranties that speak to future per-

What other legal options do I If your software was acquired

more than four years ago, any relicensing within the past four years - particularly upon pay ment of an additional fee - may restart the chick

Also, if the software is subj sance agreement. the broad language of that serrement may be construed to require fixing the code. Further, if you enumered one sultants to help design your software, the consultants mar have an obligation to fix the

year 2000 problems. Finally, many states have adopted laws rendering illegal any activity that is an unfair commercial practice Perhanthe repeated sale of faulty soft ware would constitute such a

practice What about the vendor's rights if I hire someone ele

An original wendor may claim that management has disclose trade secrets by delivering its intellectual property to other programmers, account firms or consultants in violation of copyright laws or express nondisclosure

What in management's best

Options here include using the threat of a lawsuit against your vendors to get them to fix the software or to drive down the price of fixing the software, try ing to get vendor cooperation. replacing the software entirely or having it reworked by inde

It is important that IS and

legal forces be directed at an carly stage. Only forceful management action can make sense out of what is a complex and generally underscorecisted crisis that is made more difficult by its inter disciplinary nature

Honig is an attorney at Goldstein & Masello, a lew from in Boston, He ecializes in high tech. He can be reached at shooig@gmlaw.com. tolty at Balance College in Weller ley, Mass. He teaches information echnology and accounting and car be reached at gree

AS/400 CONTINUED FROM PAGE 49

As troical users of IBM's AS/400 computer, Ekco's manage ers aren't interested in the, bleed ing edge" or in hiring legious of programmers. They are hungry for new ways to extract me

ful information from data they have been collecting for wars. We're trying to get as much detailed information about what's happening as close to the consumer end

of things as we can," said Charles Dietz, director of information systems at Ekco's data center in suburban

Chicago. The com built the start of a data warehouse with 1G byte of sal

ufacturing and financial information. Eleco uses Silvon Software, Inc.'s Sales-Tracker query and reporting tool

Change for the bet Recent changes in the AS/400 hardware and operating system make the platform more suited to data warehousing applications. users and analysis said For example, IBM has intro

duced better-performing hard-ware that uses 64-bit chips. And the AS/400 now has a gateway for Microsoft Corp.'s Open Database Connectivity programming interface that lets Windows PCs access a server database.

But there is still some skep cism about whether the AS/400 cas handle complex tasks that involve terabyte-size databases. Kevin Strange, a research director at Gartner Group, Inc. in

San Jose, Calif., said the built-in

more tools to support "industrial-

strength" analysis applications. "If an organization is commit-ted to the AS/400, there are certainly now more options to use it as a strategic decision support system. But the complexity of a [large] data warehouse is beyond

thé AS/400," Strange said. A deal ann A deal announced last month by ShowCase Corp. might help. The

company is porting the Essbese analytical database application from Ar bor Software Corp. in Sunnyvele, Calif. to the AS/400. This is the kind of mov

IBM needs to contitue making, obprivers said. It bolls down to "providing tools that are widely available on other platforms

such as Unix and Windows NT, raid analyst Aaron Zornes, an executive vice predent at Meta Group, Inc., in Bur-

ngame, Calif.
A longtime AS/400 shop ports Authority, Inc. in Fort Lauthe Eusbase port. The sporting ods retailer is piloting a gratem that store managers and too execves will use to extract sales trends from a 12G-byte data ware-

So far. Sports Authority users are seeing answers to queries in 10 minutes from the AS/400 than took three hours on a PC server, said David Brenner, executive innation administrator at the

This is data that before was tually inaccessible," Brenner said. In the future, "we expect to be able to see whether T-shirt sales in the South are better than in the North," he said.

For Europe, dollar conversion adds to the confusion

uropean organizations dealing with the year 2000 convey sion effort have the added task of retrofitting their financial systems for a pan-European cur The move to the European dollar will affect financial mar-

ts and settlement systems in January 1999. A single curre cy will be introduced in 2002.

The changes are expected to cost European banks more than \$200 million each to convert their systems and proce-dures, said Alec Nacamuli; director of payments at IBM Consulting Group in London.

On the other hand, firms that are standardizing on global. packaged software - such as SAP AG's R/3 client/server software - are well-positioned to deal with the arrival of a pan-European currency. This is because SAP and other wen dors have already built in the necessary co That was one of the key reasons Norsk Hydro A/S, a multi-

sillon dollar Norwegian chemical company, chose to stapdardize its global operations on R/3.

"The year 2000 insue and Euro currency were both big fac tors two or three years ago when we were deciding on software," said Andy Hafer, chief information officer at Hydro Agri North America, the company's U.S. subsidiary in Tam Fla. Now, it's a nominage for us.

- Thomas Hoffman and Julie King

Stop shouting! Gentle persuasion is the best way to get users to help keep data under lock and key.

By Steve Alexander

It's the kind of message that has to be communicated gently but effectively. How do you spread the message of data security throughout a company? How do you get people to really practice security, rather than just pay it lip service or ignore

It's possible to get managers and users to take security seriously. The secret, information systems security managers say, is to endst management's belp, work with users instead of playing security cop, and make security easy. 'Management has to provide the resources security needs and also has to prac-

tice security itself. You have to have the help from the top, and that's the bottom line," says Bob Cartwright, an IS information protection specialist at Pacific Bell's network integration business. One way to enlist management's support is to explain the liability potential, Cart-

wright says. Tog managers, as officers of a public company, could be sued if it ap-pears they kniew about a security risk and did nothing about it, he explains."

One company where management got the message is Detroit Edison Co., an elec-

tric utility that serves about 2 million customers in southeastern Michigan. Last November, it won an "information protection program at the year" award from the Computer Security Institute, a San Francisco organization of security professionals. "We work with users to identify the risks and the controls that meet their needs. But the balance to be struck between ease of use and security is up to them," says. Tom Peltier, N. supervisor of information protection at Detroit Edison. That stance

allows him to abid being an information necurity cop. "My job [is] not punitive. My job is protection." he says. Peltier says the company won the award largely because senior management sup-

norted his efforts. Before Petter joined Edison about three years ago, a son-IS executive convinced management that information gave the firm a competitive edge. Peltier built on that foundation by gently reminding management that securieage. Petre tour on that roundation of growy remaining management than security programs beloed protect the company's assets. "When you tell them they can be held personally liable, you sell that as judiciously as possible. But you do have to sell it," he says. "When I took over, information security had three people and a \$250,000 budget. Now it has a staff of 10 and a \$1.2 million budget." Security people need to escape the stereotype of being cops, says Ed Hepker, manager of information security at USA Group, Inc., an Indianapolis student loan



to build a data warehouse? If so, The Deta Wi ate would like you to look at the feats of nine firms it recently red in its "best practices" competition.

es and the creation of "sub

ers included the following: of Myers Squibb Co. In New York. The phy ed legacy internal and external data into an'accurate right amo

planning process with a multidimensional di resulted in an anticipated \$130 million in san



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ert anything unu

users security horror stories, Hepker says.

"Horror stories just roll off. And the more horror stories you tell, the more people think of you as selling fire insurance. The insurance tality has greatly hurt iS security in a lot of organs, because people don't want to buy fire ins

ance and are always looking for ways to buy as little as oble," Hepker says.

A better approach is to sell security as a co advantage. "If you show how security contributes to the overall goals of the corporation, anybody in the corporation will be willing to invest in it," Hepker says. Sometimes it's helpful to give users small gifts such as computer disk holders with messages that remind them to practice better security, Cartwright says. He believes gadgets work as security reminders because

ers love the items and often ask for them. Sometimes security can be improved if management ives users a list of what is expected of them, says Wilım Hugh Murray, ex ve consultant for IS security at Deloite & Touche in Wilton, Conn. "It should be a relatively short list, users should be reminded of it fre-quently, such as by E-mail, and the list should be made

easily accessible by putting it on the server," he says. . Management can enforce security by asking each employee to monitor neighboring workers for compliance, Murray says. The employee is not being a tattletale; he's just doing his job."

IBM's security program was another model of enforcement, Murray says. Confi-dential data that wann't locked up at night was confined by security and a receipt users who write down their passwords. Rather than bernie them, he just urges then was left in its place. The first time this occurred, the user could retrieve the data from security with the receipt: the second time, the user and his or her manager had

to retrieve the data together, the third time, the user and manager had to go to a impossible. It requires a series of small steps rather than a cosmic solution. vice president; there was no fourth time. When it comes to encouraging workers to comply with security rules. Murray Alguander is a feedbace writer in Edina, Mins

guarator and educational consultancy. "Most people have a predefined notion that likes to tell the story of the security manager who walloof the halls without a securi-IS occurity is there to tell them what they can't do, "Bepker says." We have a lot of y badge mail a worker stated him to produce one. The manager did and gave the work to do to break through that procession." One way to go about it Stop telling worker a \$1000 M. After this occurred several disease, who canne more eager to

uld be tale! Report anything enusual. "Most attacks on infor-mation systems today involve some amount of duping or fooding eners by asking questions that shouldn't be answered. When a user gets a strange phone call, be should tell management or the security staff about it. Spreading the word

Morray says.

Jim Milner, a user interface specialist involved in se-curity at Phillips Petroleum Co. in Bartierville, Okla.

says there are ways to improve traditional possword security. One simple but effective technique: Mandate that passwords contain at least two numbers. "It's harder for someone to guess the pass and, because it's not a word, you can't run it th

dictionary programs. If a password is in any dictionary, there are lots of programs that will beat it to death until they find out what the possword is." Milner

And require that when a password is changed, there can be no more than three letters from the old ord, Milner says. He also favors passwords that yms for easy-to-remember plants The the first letter out of each of the first five to

eight words of a phrase, such as 'Now is the time for all good men to come to the aid of their country.' Now you've got a nonbreakable password, and it's easy to remember the phrase," Milner says.

to be careful. The message in all this advice seems much the same: Information security isn't

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October workshops

A list of workshops for IS managers. Some workshops are offered later in the year in other cities. To find the time and location most convenient for you, contact the sponsor.

Sorrywat Licrosum Americane 11. Cincinnati, Oct. 1; Cleveland, Oct. 2; New York, Oct. 8; Boston, Oct. 9 Fee: \$495. Cantact: Professional Learning Center, Invine, Calif. (714) 725-0758. Fax: (714) 735-9953. E-mail: 7210.2233@compuserve.

EFFECTIVE SHALLS FOR TECHNICAL MARAGERS. Toronto, Oct. 1-4; Washington, Oct. 8-11 — Fee: \$1,595-\$1,595. Contact: The Learning Tree International, Inc., Reston, Va. (8co) 41-871; World Wide Web address:

INTERSET AND SYSTEM SECURITY: ATTACKS AND COUNTERMEASURES. Washington, Oct. 2-4 and Oct. 22-25;

New York, Oct. 29-Nov. 1 — Fee: \$1,595-\$1,995, Contact: The Learning Tree International, Inc., Reston, Va. (800) 843-8733. Web address: www.learningtree.com.

Project Managements Serius role Success, Washington, Oct. 3-4 and Oct. 22-25; Boston, Oct. 39-Mev. 1 — Fee: \$4,595-54,995, Contact: The Learning Tree International, Igc., Reston, Va. (Boo) 843-8733. Web widness: www. learnington.com.

SOFTWARE QUALITY ASSURANCE.
Washington, Oct. 3-42 Los Angeles,
Oct. 29-Nev. 1 — Fee: \$1,595-\$1,995
Contact: The Learning Tree international, Inc., Reston, Va. (Soo) 843-8733. Web address: www.

PROGRAMMING FOR INTRANET'S ARE THE INTERNET. Washington, Oct. 2-3; 8oston, Oct. so-se; San Jose, Calif., Oct. sy-s8 — Fee: \$895, Contact: Data Tech Instituto, Ciffon, N.J. (201) 478-5400. Fax: (201) 478-6458. Web address: www.datatech.com.

COMMUNICATION AND INTERPRESONAL SEMILLAS: A SEMIMAR FOR TECHNICAL PROFESSION MUSICIPATION (M. 24-78). Chicago, Oct. 39-784. 1 Fer 5.1.95; Sh.3/5. Contact: American Management Association, New York, N.Y. (800) 262-3699.

SOFTWARE: ISSUES, CONTRACTS, NE-SOFTWARE: BOSTON, OCT., 78 — File SOPS, CONTRACT: International Computer Negotiations, Inc., Winter Park, Pla. (407) 740-0700. Fair (407) 740-0368. FREWALLS ARD INTEREST SECURITY. St. LOUIS, OCT. 78: SOMEWORL, N.J. OCT.

so-sq Invite, Calif., Oct. 21-22; Denver, Oct. 24-35 — Fee: Sopp. Contact: Data-Tech Institute, Ciltion, N.J. (201) 478-5400. Faz: (200) 478-4408. Web address: www.datatech.com.
Suzyyysa se Telecommenications

Management New York, Oct. 79 — Fee: \$995, Contact: BCR Enterprises, Inc., Hinsdale, III. (Boo) 227-1234 or (yol) 986-1432. Fax: (yol) 323-5324.

MARKEOOD I ELEMENDES

TAMOS STAUTEURS. ONCA ARE IMPLEMENTATION STRAUTEURS. ONCAGE: Digital Consulting, inc., Andover, Mass. (505)

470-3880. Fax: (506) 470-0526.

E-mail: Conflict@ddciespo.com. Web address; www.DCiespo.com.

locamerines and Communium Usan Regenesulars. Washington, Oct. 8-11; Boston, Oct. 22-25 – Fee: \$1,595-\$1,995, Contact. The Learning Time International, Inc., Reston, Va. (Boo) 8(3-8733. Web address: www. learnington.com.

SOTTMANT PROJECT PLANTING AND MANAGEMENT TORONG, Oct. 8-12; Boston, Oct. 5-18]; Los Angeles, Oct. 29-Mov. 1 - Fee: \$1,595-\$1,595, Contact: The Learning Time International, Inc., Reston, Va. (Boo) 813-873. Web address: www.learningtree.com.

LEASUM RESOTIZITIONS WORKSHOP. Boston, Oct. 9-13 — Fee: \$1,395. Contact: International Computer Regotiations, Inc., Winter Park, Fiz. (407) 740-0568.

STRATEGIC IS PLARRIBE: FOR SERIOR ALS SERIOR MARAGERS. Scottsdale, Ariz., Oct. 9-11 Oct (1-1) Oct. Serior Serior Management Association, New York, N.Y. (1500) 261-9699.

TI SUGSAM

Perrormance. Chicago. Oct. 54-55 — Fee: Spps. Contact: Digital Consulting. "Inc., Andorec, Mass. (508) 470-3880. Fax: (508) 470-05-56. E-mail: Conflety@driespo.com. Web address:

Business Process Re-Endmerships Seastake. Greenwich, Conn., Oct. 15-16 — Fee: \$675. Contact: Pierson Applications Development, Inc., Seamford, Conn., (203) 322-9606. Fax (203) 339-0373.

Preventes Application Mestinows. Chicago, Oct. 16 — Fee: \$495-\$595. Contact: Hurwitz Group, Inc., Newton, Mass. (517) 894-0845. E-mail: Info® humber zone.

INTERNET APPLICATION DEVELOPMENT
FOR THE ENTERPRISE. Washington,
Oct. 56-58 — Fee: \$1, 395. Contact:
Digital Consulting, Inc., Andover,
Mass. (508) 4,70-9880. Fax: (508) 4,70
0526. E-mail: Confixeg@ddiespo.com.
Web. address: www.Citezpo.com.

INFORMATION SYSTEMS PROJECT
MARKACHURST, Washington, Oct. 1618. Denver, Oct. 21-29; New York, Oct.
30-New.1 — Fee: \$1,295 \$1,490. Contact: American Management Association, New York, N.Y. (200) 262-9699.

Improving York Internal Consulting Skills: Fou IS Profes stocals: Atlanta, Oct. s6-s8 — Fee: \$1,295-\$1,490. Contact: American Management Association, New York N.Y. (800) 262-9699.

HOW TO MARAGE, MOTIVATE ARE COACH SUPPORT PROPESSIONALS. Atlanta, Oct. 21-22 — Fee: \$595-\$695. Contact: Help Desk Institute, Colorado Springs, Colo. (800) 248-5667. Fax: (719) 236-235. Web address: www.bletpDeskinst.com

MARAGER TECHNICAL PROFESSION-2LS, Chicago, Oct. 26-5R, New York, Oct. 22-23 — \$1,245-\$1,430. Contact: American Management Association, New York, N.Y. (800) 262-9699.

MESSAGING, GROUPWANE AND INTRA-BETS. Orlando, Fla., Oct. 23-23 -- Fee:

\$1,195. Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880. Fax: (508) 470-0526. E-mail: Confleeg@cicespo.com. Web indoress; www.Disenp.com.

Business Paogans Ra-anninesanne. Washington, Odt. 22-25 — Fee: \$5,595-\$1,995, Contact: The Learning Tree International, Inc., Reston, Va. (800) 843-8733. Web address: www.learningtree.com.

BEST PRACTICES IN IMPLEMENTING

FILE. DOTS NOTES. Orlando, File., Oct. 24
25 — Fec: 5995. Contact: Digital

Consulting, Inc., Andows, Mass. (508)

470-9880. Fax: (508) 470-0526.

E-mail: Confile@dicisepo.com. Web
address. www.Dicisepo.com.

Communication Amb THE Communication, Deliles, Oct. 28-29 — Fee: \$1,50. Contact: The Information Management Forum, Allanta, Ga. (770) 455-0070. Fast: (770) 455-0082. E-mail: tim filmindspring.com. Web address: www.inform.mriforum.com.

INTERNET ACCESS, SECURITY AND PIRE-WALLS, San Francisco, Oct. 29-30 — Fee: \$995. Contact: BCR Emergrises, Inc., Hinsdale, Ill. (Boo) 227-1234 or (708) 086-1472. Fax: (708) 127-5 124.

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The costs and challenges of managing PC LANs have users turning to management suites

DESKTOP DILEMMA

LAN management can be like a holl and chain for an information systems shop. Often, IS has the with this job after user departments determined they could no longer manage it. Now IS is can all it has to live with desistop and LAN management, it must find better ways to handle it.

position want to minimize staffing requirements and gain consistencies for PC LAN administrations.

The Michard Villars, director of network software research at International Data Corp. in

Mass. You we store aging. If we can't manage from a central site, then we should at a laws the same approach from department to department."

The market research firms, such as Gartner Group, Inc. in Stamford, Cons., and survained basered, Inc. in Cambridge, Mans., claim fast because of poor management, inconsistencies of pastandancies. In our survey organization has been sporting thousands of allows prey were lovery and dealtings up and running. For example, Forrester Research estimates that companies spired \$1,050

There have been plenty of product choices for PC and LAN management, from point products that handle a specific monitoring or management that to full-blows enterprise management platforms. But due type that has gained favor among managers recently in desloop management unites.

These pail combinations handle desictop and configuration management, remote monitoring and several combinations handle desictop and configuration management, remote monitoring and several products of the product of the pr

regement functions, such as software metering and distribution, from one package.

Desktop dilemma, page 8

SPANS TWO CONTINENTS.

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get-there-from-here naysayers to their knees. ClearPath

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stor Sults: 23% market

are metering, softop virus prote

gration: Single Windows-box coess all surte applications,

Prielnic \$635 for a 10-node license pack Continued on peut page

DESKTOP DILEMMA

CONTINUED FROM PAGE 81

The big advantage of a suite is that a number of management tasks can be performed without having to fumble from one product to another. So IS managers could plan software upgrades by first reviewing inventory data and then launching an electronic distribution of the software. They could then keep tabs on activity through a metering component and do this all from one manage

meet nackage Of course, suites present a big downside: Customers essentially rely on one source to provide them with a range of critical products. But users say they are increasingly willing to make this trade-off to avoid the bassle of integrating tools them-

The players

The best-known suites are those of fered by Intel Corp., Symantec Corp., McAlee Associates, Inc. and Novell. Inc. By last year. Microsoft Corp. had snapped up an 8% chunk of this market with its new Systems. Management Server product. A customer who evaluates management suites is bound to get an earful on integration from the vendors. They're all working to tighten integration of their tool offerings in-

take on more projects."

EMERGING MARKET

ortment of network and des While an acco monitoring and management tools have been on the market for years, an emerging market segment of desktop manage International Data Corp., which defines this des vendors that sell aultes or tool

incles, estimated that this segment will enerate \$418 million worldwide this year end \$800 million in 1999

1995 DESKTOP ADMINISTRATION MARKET SHARES 35% 22% 11%

ternally and of their suites with other products. McAlee is a good example. Its suite is built from components that the company picked up through several acquisitions, so the company is working to migrate all the tools to one database. It also provides a link to Hewlett-Packard Co.'s OpenView view inventory data collected by the Mo-Alee tool from within the OpenView environ-

> Selecting the suit that best fits your organization's peeds won't be easy. The suites have many of the same basic tools - a desktop management function and key management tools such as metering and distribution - so there's no obvious winner from strictly a core function perspective, according to industry analysts and IS manag-

> The suite vendors now support Novell's NetWare and Micro soft's Windows NT. The pricing is similar as well, with each lead-

ing package offering a starting price of less than \$800 and support for be tween five and 10 users. But a closer look shows that each vendor puts its own spin on its man agement suite. That could help narrow the choices. Intel, with the big gest chunk of the market, has

HOW DOES A MANAGEMENT SHITE IMPROVE OPERATIONS?

"It's difficult to put a finger on hard dollars, but we have been able to ac Jase Aguilar, sonior systems engineer, inc., an energy company in Tulus, Ohla.
 Silver installed Juto's LANdesh last war.

ring what's going on the network. In a campus like ours, it isn't hierarchical. It's a ch sent. We need to know what's up, what's down, what's going on." John-Eric Laupdale, systems and bruig School of Medicine, San Franci which raw Novell's Manage P

mey. In the past, we would buy a whole suite of soft her of copies we have on the nict and run them legs need to buy more copies."

rated Techno

which runs McAfer's Saber LAN workstation pack-

Novell has a clear edge as a networking leader in the group. Its packaging also differs because it of fers metering and distribution canabilities as add-ons, whereas other providers bundle those tools in their core suites.

One potential advantage for Sy mantec is its plan to offer a modified version of its suite that would easentially let buyers pick and choose the

onents they want. McAfee has its own twists. For instance, it recently announced plans to link its suite with a help desk package from Vycor Corp., which it

acquired earlier this year. Users' different needs

Ultimately, industry observers and IS managers say companies should pick a suite that works best with the way their origanization wants to handle desktop management. "Different environments will be successful with different products," says Ray Paquet, a senior research analyst at Gartner Group, "Ask yourself, What is my environment and what will the

needs be?" Overall, JS and LAN managers say management suite packages have provided big benefits by helping them gain control over what has been a frequently chaotic LAN environment. The accompanying seticles provide a look at how the suites are holding up at a number of organizations, based on interviews with users of each of the four top providers of suites.

is a freelance writer in Waloole.

WHY IS SUITE INTEGRATION IMPORTANT?

WHAT ADVICE WOULD YOU GIVE IS MANAGERS?

WHAT ARE SUITES MISSING?

Snapshots



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Computer Press Awards June 19, 1996 Best Technical Trade Magazine Computarworld 8/28 & 13/6/96

Lesser-known PC LAN tools hold ground in niche areas



ent products are so plentiful an boggie your mind. Possibly the to look at the market in to divide it On one side are the four vendors that the bulk of the market - Intel Corp., Sy ne Corp., McAlee Associates, Inc. and Nolec On the other side is a handful of other lors, several of which are extending into the

arena from other industry se "No vendor has locked up the entire market," says Rick Villars, an analyst at International Data Corp. in Framingham, Mass. Computerworld has outhered opinions about products other than those from the Big Four.

Analysts and users provided views on the Deskton Management Suite (DMS) from Seagnte Software, Inc.'s Network and Systems Management Group in Cupertino, Calif.; Server Works Manager from Digital Equipment Corp.; TME 10 NetFinity from Tivoli Systems, Inc. in Austin, Texas, Systems Management Server (SMS) from Microsoft Corp. in Redmond, Wash.; Cenergy from Tally Systems Corp. in Hanswer, N.H.; and the Enterprise Desktop Management Suite (EDM) from Novadigm, Inc. is Mahwah, N.J.



-Throll's NetFinity lets users set up alerts

Analysts say if these vendors want to keep up with the larger players, they must build relation-ships with hardware vendors. "The goal of all products is to simplify the solution," Villars says. The companies that bundle with hardware

have a chance of getting a greater market share. says Chet Geschickter, managing director at Hurwitz Group, Inc. in Newton, Mass. That is where much of the hattle is being fought, he says, Users say they want the case of use that such

ons provide. But simply bundling servers with hardware won't satisfy all users; the prod sicts need to be improved, too. For instance, they need tighter integration with enterprise manage ment posterns such as IBM's NetView, Hewletz Packard Co.'s OpenView and Cabletron Systems Inc.'s Spectrum, "All these products have the same weaknesses. They are integrated more in spirit than technology, but they all have recognized the right ideas," Villars says,

In the future, users should see better links to wise management systems, increased ability to do things automatically and increased suppor for the Windows NT platform, Geschickter says. Users expect all the products to at least have an tory system, a tie to a software distribution facility and remote access, Villars says. Beyond COMPUTERWORLD AUGUST 26, 1996 (www.com

that, each product includes additional distinguish ing features

eto's Deaktop Ma

DMS combines Winlastall from OnDemand Soft ware, Inc. in Naples, Fla., WinLand from Frye Computer Systems, Inc. in Boston and Proxy tools from OFM sympler Funk Software, Inc. in Cambridge, Mass. The suite provides inventory, soft-

ware distribution and remote control capabilities Promy a remote control program, beloed the Welborn Clinic in Evansville, Ind., trim the time formation systems staffers spent in the field "Prorry probably pass for itself every week," says

Jeff Gorman, systems administrator at the clinic And Winlestall, the suite's software distribution application, created excitement among users. Users expressed basic satisfaction, but they want tighter integration, better documentation and control of a Windows 95 machine via Proxy Seagate says a new version will be available at

the end of the month. It will have a Seagate antivirus add-on module and support for NT 4.0 and 32hit applications

www.dec.com

Digital bundles ServerWorks Manager, a package of network management tools, with its Prioris servers. The tools are ServerWorks Manager Simple Network Management Protocol agent, ServerWorks Manager Applications and Manager Works Workgroup Administrator. This trio lets adistrators perform network management and administration, server management and LAN

Because it already holds an established place in the hardware market. Digital doesn't need to search for a hardware partner, Villars says. The company claims the product's open architecture makes integration with enterprise manement products such as NetView and Open-

View relatively seamless. Tivel's TME 10 NotFinity

TME 10 NetFinity is another offspring of a hardware weador. This makes bundling it with IBM's server a natural response. (Tivoli became a division of IRM when the two companies merged in

With this suite of tools, administrators can remotely access and manage systems, collect software inventory and perform other management

Several of those features appeal to users. Hardware identification, remote control, remote access support and screen custure won over Vince Pepe. a distributed systems analyst at Washington Mutual Bank in Seattle. Pege has one request, "I would like to see them include packet capture and

would complete the package for me," he says.

The ability to set up alerts works well for Pege

and Lloyd Blauen, a senior systems engineer at OR Group, a subsidiary of US Air in Arlington, Va. When Blauen was out of town, he knew some

had rebooted his machine when the alert dialed his beeser.

nooft's Syste ex.microsoft.com

With SMS, an administrator can automatically in wentery software and hardware and distribute and install software as well as remotely access systems to correct problems.

Analysts and users hope SMS will smooth out the rough edges with Version 1.2, which is in beta testing and scheduled for release by fall. "It is still a 1.0-type version," says Angel Cortez, senior sysms analyst at Nordstrom, Inc. in Seattle. That isn't to say Microsoft isn't on the right track. They have a vision of a decent scalable architecture. It's not there yet, but they have the

right idea" says Chris King, an analyst at Meta Group Inc. in Reston, Va. And certain strengths are already in place SMS solves a lot of our troubleshooting needs, says Andrew Drooker, project manager at Turner Broadcasting Sales, Inc. in Atlanta

Tally Systems' Conorgy www.tallysys.com

Cenergy incorporates WinInstall for software distribution, NetCensus for inventory and Centa-Meter for software accesse meteging and monitoring to achieve what Tally Systems calls a desktop

It's not uncommon for a company to have more than one management package. "Very few users have only one product. They can have three, four five," Villars says. Tally Systems recognizes this and recommends using Cenergy alone or with Microsoft's SMS. The company claims it works well in the SMS environment.

Novadigm's Enterprise Dasktop Manager

Noradigm defines EDM as a distributed software environment that ensures each user has the correct version of an application, and it claims to de

It undates and discards versions of software without the administrator's intervention. This is possible through recognition of object differ-ences. This capability appeals to Geschickter. "It focuses on the deltas in the environment," he

Although EDM doesn't offer the same cambii ties as other products in this category, one analyst says Novadigm is doing a lot on the desktop.

Mallow is Computerwoold's assistant researcher.

Extras

York, N.Y. 1002

Price check on four.

1	2	3	4
Pentium M6MHs MS Windows NT	Pentium teetelila SCO UNIX	Pentium 183 MHs SCO UNIX	64-bit PowerPCAS OS/400
SQL Server	Oracle 7.1	Oracle 7.1	DB2 for OS/400
\$22,009°	\$26,003*	\$29,205°	\$17,720°

If you're in the market for a small business server, you'll want to check out AS/400° Advanced Series. It's a lot less expensive than similarly configured competitive systems. In fact, prices start as low as \$7,995.

If that's a surprise, consider this. With AS/400, the operating system, relational database, security, systems management and communications are fully (Integrated into the system. That means there's no need to go out and find the latest and greatest software it's all built in. No assembly, no compatibility testing, no programming. You can get right down to business. And here's another surprise. According to an independent consultant's study of American small businesses, AS/400has the lowest cost-of-use over a five-year period. The study compares leading INTEL-based LAN server platforms to the 64-bit AS/400 and examines system, staffing and networking expenditures.

So if it's time to move up to a server, put AS/400 Advanced Series on your shopping list. Costs less to buy. Costs even less to own. If you'd like to know more, visit us at www.as400.ibm.com or call 1800 IBM-4YOU; Priority Code GAS6B002 for a detailed information package including a copy of the IDC report.

Solutions for a small planet

Cable modems. Phone companies. Seems as if everyone's iockeying to take remote computing to the next level. With no clear favorite, the whole field is

Wired to wire

By Steve Alexander

ers, one thing is certain: Telecommuter data traffic and the firewall problems that work-at-employees pose will increase. ether cable modems will target

house or business use initially is an open mention. Analysts are divided. Peter Krasilovsky, a senior analyst at Arica Communications, Inc., a market re-search firm in Betheads, Md., says cable modems may make more sense for business applications than for residential use because direct fiber connections are more available to business. But David Pangrac, director of Network Creation Services at Andersen Consulting in Chicago, disagrees. The

primary reason for cable modems is for residential use because it ties you to data petworks from your home," he says. Ed Lewis, marketing manager at Motorols, Inc.'s multimedia group in Arlington Heights, BL, predicts the busi-ness market for cable moderns will take off next year. There is a lot of work be- solve many technical prob-

vision company, is running commercial trials in Easter, N.H., water a paracter of lanks 30 physicians' offices with the local hospital. Each office is the local hospital. Each office in the local hospital and office in the local hospital and the access their

the home market. Dave Fellows, senior vice president of engineering and technology at Continental. says two cable modem factions are competing in his company: one that favors rolling out business services first the other, residential

The first group says busi- weedors are josting ness can afford a higher cost per month, that winning one corporate customer might result in 100 individual subscriptions and that IS help darks in compensions would

ing done behind the scenes. You'll see lems with cable modems without the in-nignificant business use in 1997; he says. terrecation of the cable company, Fed-Continental Cablevision, Inc. in Bos-lows says. Residential advecates, yet too, the nation's third-largest cable tele-that market is larger and avoids the biggest downside of the business market: corporate firewall problems.

is also running extensive tests aimed at workers at home need to access their Hot tip: were inside the corporate firewall but without com-promising the protection that a firewall provides. Remote computing will get better and fester in the next year.

take a while to

separate the

This offers a different chalbut size, there's so lenge in managing security safe bet on just how and operating a firewall, that improvement will Fellows says. One solution is encryphappen. Cable modern tion. Another is what Fellows calls "IP tunneling," in with talephone ories, and it may

which corporate fouters send all traffic from telecommuters' Internet Protocol addresses to one IP address inside the corporate firewall, providing more

How are the business trials going! Simon Doberty, an IS specialist who manages Windows NT and Unix workstations at Wharton Business School in

iphia, is participating in a cable modern trial run by Comcast Cable Communications, Inc. in Philadelphia Doberty says the cable modem often saves him the 90-minute round-trip to work to deal with emergencies. The downside, he says, is that the upload speed has been slower than an Integrat ed Services Digital Network (ISDN) line would be - certainly not the 1.5M 1M bit/sec. rather than 6M bit/sec-

bit/sec. be was expecting. Downloads also are slower than he expected, about Doherty plans to try Asymmetric Digital Subscriber Line (ADSL) and other cable modem alternatives because he says he believes phone companies have hither reliability.

The telcos strike back Competition for cable modems will come from telephone companies such as Bell Atlantic Co., which is conducting



Tout sheet

ing to Both Gage, on analy ToloChoice, Inc. in Tolos, O

trials with ADSL, a twisted-pair tele-

phone line technology. Beth Gage, an analyst at consulting firm TeleChoice, Inc. in Tulsa, Okla., says ADSL will be rolled out in 1997 and 1998. "However, if cable TV colspunies follow through with their 1997 installation projections, that could speed up what the phone companies

do," she save. Kamran Sistanizadeh, director of network systems engineering at Bell Atlantic Network Services in Arlington, Va., says his firm is conducting ADSL technical trials now and will run marketing trials in the fall for residential and small business service. Bell Atlantic customers will be able to receive data at 1.5M bit/sec. and to send data at 64K bit/sec.

Sistanizadeh says ADSL will offer customers a secure dedicated line. which he claims will provide higher ality service than the shared cable TV network a cable modern would use Fellows concedes that cable TV

companies haven't historically been as dependable as telephone companies - in most cases, he says, because they weren't running fiber networks. But he says cable firms are upgrading their networks to provide fiber to neighborhood nodes and are installing network monitoring centers that watch for bit error rates, dropped packets and end-of-line signal performance. Although 70% or more of cable systems will need upgrades to offer cable modem service, the industry will accomplish that within three years, Fellows claims.

Fading in the stretch? Both cable moderns and ADSL have 'moderns and for ADSL."

potential technical problems.

Pangrac cites electronic noise that Alexander is a freelance writer in Minne-

from loose connectors or improperly installed cable equipment in homes. Hewlets-Packard Co.'s solution to

the noise problem is a frequency-hopping technology that seeks the quietest channel. The noise factor is not going to slow the rollout," says Casey Sheldon, HP's brand manager for interactive broadband products in

Cupertino, Calif. Kranilovsky says there may be problems scaling up from initial cable modem trials, which often involve, about 100 users, to comm tems that serve thousands. "What all the cable TV engineers say secretly is, Wait until you have a thousand users trying to download something; then you'll have big trouble," he says.

Fellows says scaling up will be a challenge, particularly because Contitental hopes to have I million comoust ers on its cable modern network within four years. But he says it can be done by sticking to existing data net-work and World Wide Web server

The telephone companies' offerings aren't without drawbacks. Sistaniandeh acknowledges that the XDSL products (see box at right) have distance limitations: Users who are more than 15,000 to 18,000 feet from the one company's central office won't be able to use those services. But he says the majority of Bell Atlantic's cus-tomers are within that distance.

It's unclear whether cable modesns or telephone company alternatives will win the greatest market share. "It's too soon to say who is going to win," Sistanizadeh says. 'Tm sure there are going to be market segments for cable 18 RK hither 64K to 126K bit/sec. Officially, up to soll biblisec, in both directions, but bettleneds business use expe may reduce that to sall to sall in 1997 or 1998

bit/sec. Speeds in some early trials have been even closes il.: sire of all the DSLs, the Digital Subs provide high-speed data and voice com-pair lines. Here are the or

Typically provides 1.5M bits to the user and 64K bit/sec. from the user. Provides voice and data simultaneously

> Tenically new Mes. 1680 biblec in both direct This symmetric service ndles either voice or data offices. Rollout timing for but not both at once. those markets depends on

s.5M bibbec. in both directions. Handles data and voice at the

> Expected to provide 25M to 50M. bitfac, downstream and s.ulf. to all bitisec upstream, but it's still in development, Actual capacity will yary with quality

This planned service would matically and dynamics match its transmission speed to the modern with which it is

same time.

of local phone lines.

mercial avails cted party next was Technology is available to day but isn't being mark for Internet access or home

phone companies. in trials, but likely to roll. out a year later than

Five to so years off. Works " on capper wire for only soo. feet so must wait for the construction of more hybrid fiber coasiel systems

Probably not until late next



Computer Careers

Programming pioneer

HBO's James Altucher is marrying IS skills with Interactive television creativity to redefine the

programmer.

By Leslie Goff

rogramming is taki on a whole new using for some IS working on World Wide Web development projects

James Altucher, a systema analyst at Home Box Office, inc. in New York, programmed the cable television network's Web site (sww.hbo. com) and is the brains and brawn behind one of the site's key features, a program -that'a "program" in the TV sense - called

III am is reality TV on the Web. Altacher documents the unglamorous side of life on the streets of Manhattan, which around 3 a.m. begin to take on a surreal quality uniquely their own. As the off-camera interviewer of people who room the night, he approaches total strang ers to ask the burning question, "Why are you out at 3 a.m.? Their responses, which tend to take many dramatic turns, are the heart of the show.

Altugher, who earned a bachelor's degree in com puler science from Cornell University in 1989, is amone a growing breed of information systems professionals who are bringing their personal interests. technical experience and project management skills to the creation of corporate Web sites.

As the producer of III:am, Altucher blends a back end in interactive TV with Internet expertise. And he fosters an ongoing interest in the erratic and bi-sarre to explore how HBO's Web site can reflect the network's corporate — or on-sir — identity, while of

Although he wears a producer's cap and works mainly for HBO Interactive Ventures — which is re-sponsible for HBO's Web site and intranet — Altocher still reports to HBO'a IS chief, Bruce Probst. He still works alongside fellow computer programmers. But he enends his days organizing shoots, editing es, transcribing interviews, posting material to the site and working on other HBO Web entertainment sentures, each as Readfull, an uncoming show that will follow comedian Drew Feldman as he picks up hitchhikees on a cross-country trip.

"The development of a Web site has a strong IS or entation in terms of project management," Altucher Transferring data between secure machines behind firewalls, determining what we can use on the site from the HBO databases - like schedules - and making backups of everything is all very ISneighborh "

Attucher already had experience with interactive TV before he joined HBO. He landed at the network in August 1994 partly because of The Woggles, a Dr.

Seconstyle animated virtual reality environment he helped create as part of a team in Carnegie Melion University's

Oz lateractive Fiction program. The role Attucher has assumed in HBO

Interactive Ventures

is unique, but not uncommon, according to Kevis Dowdell, a vice president at HBO. He sees a limited window of opportunity for other IS professionals to stake out unique Web development opportunities.

"To Web programming, in the content/entertainment sense. IS skills are especially important now because we are in the incipient phase of the technolone," Dowdell says, "Just as in the early days of radio or TV, in the very early stages of a technology, the point isn't just to come up with good entertainment, but also how to best leverage the technology in the face of constraints. Since we are in early stages, we look for beaple with this combination of technical expertise and [creative] skill sets.

This is a perfect outlet for me because I really feel the work is boosting my creative potential," Altucher sure "There's a lot of hidden creativity in IS departments that goes untapped."

Colling fractions writer in New York

Stiney Lalu's P mulet at 1 s.m. on a friday. The dinner crowd is long some but the club crowd has

wet to been red A small video crew is meeting at the East Village lounge in New York's sendy Alphabet City. Its assignment

Capture the mondo bizarro of Manhattan's sleep Between sips of red wine chused by coffee,

the crew of All am prepares to wander Alphabet. City's narrow avenues in search of stories to tell. IX and to the World Wide Web conductions of registre TV. The program depicts the nights and times of that unique brand of Mushattanite who is out and -

former Alburbay newspires the shoot managers the crew and acts as off-camera interviewer, just around the comer from Stingy Lulu's, he stops his first sub ject: 17-year-old Alice, with pierced its and dread locks. "Hi, we're doing a shoot for HBO. Could we ask you what you're doing out at 3 a.m.?" He is completely undiscriminating in choosing h

subjects. At 3 a.m., anyone is likely to make for a good chat, from the documentary film producer liv les with her subject family, to the young pool shark on her way home from a bar, to the interracial gay couple, to the three young Spaniards trying to soak

up as much of New York as possible in four days. Later, Altucher will transcribe the audio tapes, ed it the videotages, lay out the test and graphics, set it all up in Hypertext Markup Language and post aner new episode to the Web site.

Not long after being threatened by a punk with a mohamit - the crew had parteed the careera in his ction — the group decides to call it a night. It's nearly s.a.m. They pile into a cab and end up in the kinder, gentler West Village. Before ducking into the remaich Cafe, where raging disco music will be the backdone for drinks and breakfast, they interview a well-healed man in a red Poruche. After a long night out Alturber is on his way home, I co.





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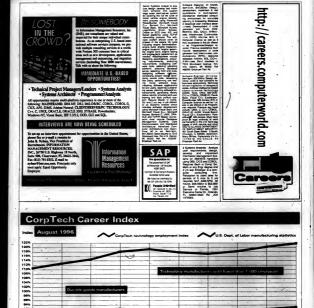
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Proactive Recruitment Techniques Base Bragman, President, Bay Cries Research, Inc.

15pm Luncheon Keynote: Industry Trends Waryfras Johnson, Executive Editor, Computers Repeat of Concurrent Sessions

Town Hall Forum Sary Duft, President, Cleff and Associates

5:60pm Program ends

Selected sessions include:

Proactive Recruitment Techniques

Dave Drugman, President, Bey Cities Research, Inc.
To remain competitive, soldy's technical retruiters need to be aware of
the lance trends in sourcing and proactive recruiting. This in-depth
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Maryfun Johnson, Eucutive Editor, Computerworld Sure, there are new della ensering the market every day, but what are the trends that drive these kilds Maryfun Johnson, one of the industry's leading watchers of the Information Systems profession will give up an upon-the mismuse view in this very special keynote address.

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Marketplace

Four questions 2 to ask before choosing a **Web browser**

With the outcome of the browse wars still uncertain, bow do you decide whether to go with Netscape Communications Corp.'s Navigator, Microsoft Corp.'a Internet Explorer or some other browser? Computerworld asked four internet analysts for advice on the subject. Here's what they say an information systems manager should ask before choosing a corporate World Wide Web browser.

et range of feections can a

mar perform? Howsers offer basic features such as support for backgrounds source code and a way to create hotlists of favorite places. But not all of

them do, so check a prospective

browser to make sure it isn't missing

at Dataquest. and tables, the ability to view a Webpage's Hypertext Markup Language

On a broader scale, take an investory of all the activities your company's browser will be expected to sup-port — electronic mail, internet browsing, online sales or intranet access to a corporate database. "Tie the browser to the applications you'll need it for," advises Brad Meinert, ector for Internet programs at Input, Inc., a market res

Sountain View Calif. "Sometimes a comp few things it needs to do, and it needs a browser that does them very well," observes Rick Spence, technology analyst at KRON television in See Francisco and a former analyst

For instance, if your main goal is to provide intranet access to an Orack database, then Oracle Corp.'s PowerBrowser is a logical choice because it was designed with that in

wser, you'll have to decide if it's th the effort to force a change my a CIO has discovered that heir company has defaulted to Net-cape by virtue of the fact that the Abyees have already downloaded it to their desktops," observes John Robb, Internet analyst at Forrester Research, Inc. in Cambridge, Mass. He says it's typically difficult to ge browsers in mid-People personalize their bros lists and plug-ins. So a CIO attempting to switch browsers will excoun-

ter a good deal of consternation with in the ranks," Robb says. Also, find out if your mark rtment already has a corner Web page up and running on the la-

ternet. If so, not only has it chosen a browser, but it has also defined many of the feathers any other cor-poratewide browser will need to bave - such as the ability to handle frames or sideo files.

standy working to provide support for multiple pistforms, from DOS to Unix, you still need to check that your browser of choice can run on all the platforms you use. Microsoft, for sle, has versions of Explorer Macintosh and for Windows 3.1. Windows 95 and Windows NT, but it n't yet offer a Unix version.



a vendor that has good cus tomer support and that looks like it's going to be around five years from ow," Meinert advises.

shareware or a beta-test browser. It's always better to go with commercial products because there's somebody you can point a finger at if

omething goes wrong," Robb says.
"IS managers should be familiar with their browser's beta version, but they abouldn't be releasing it to the employees, or they're going to be spending a lot of time on support," says Tim Sloane, director of essaging at Aberdeen Group, Inc. a consultancy in Boston #

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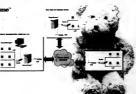
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Someone to watch over me

In the perilous early stages of a high-tech start-up, it helps to have an angel in your pocket

hile some companies rocket toward lucrative initial public offerings with the backing of well-heeled venture capitalists, the vast majority of start-ups must struggle along with minimal resources. However, a few lucky ones find an "angel," a private investor who can provide the funds

they need to move their businesses into the fast lane. Such angels pony up between \$10,000 and a few hundred thousand dollars in early-stage money, along with lots of advice and hand-holding.

Angels, many of whom became wealthy by starting their own high-tech companies, can also lend credibility to start-ups, savs Ralph Wagner an angel in Wellesley, Mass. Indeed, it is in their role as active investors, taking positions on boards of directors or offering informal consulting, that angels provide some of their greatest value. And it is a two-way street. Angels say they are usually drawn to investments by the chance to share their insights and help give direction to a new enterprise - and by how appealing the company's goals are. Wagner, who made his money as a

software entreprepeur usually invests in software firms. His background includes sales jobs for IBM in the 1950s and '50s and consulting work for Arthur D. Little, Inc. He also founded one of the first direct sales companies that offered IBM microcomputers to corporate cus-

In 1985, after selling his successful chain of computer stores, he began to invest in early-stage software and hard-

ALAN

ware companies, using his knowledge of the industry to offer experienced insights to his fledgling companies. I'm looking for people who are legsing well-paying jobs to pursue an idea," he explains. He is attracted to inveitments that "look like fun," and yet he

wants to get in early enough to "get meanineful value - otherwise I'd be better off investing in Coca Cola." Angels not only need to be good entrepreseurs, but they also need nerves of steel, according to J. A. Piscopo in Oak Brook, III. In 1969, Piscope founded

Pannophic Systems, one of the industry's pioneer software firms. It was acquired by Computer Associates Interna-You must be willing to deal with com-

panies that are always firting with bank-ruptcy," says Piscepo, who has invested in a variety of companies over the past 10 years. That seems very ordinary to me because I've been there myself, but to someone accustomed to the stock market, it would be a cause for punic."

EARLS



Similarly, picking investments is an art rather than a science, Piscopo says There are none of the convention inds of valuations you might use on a

Fortune 500 company The uniqueness of the product and e quality of the tram are part of what Piscopo considers. He also looks for a solid business plan. And before he forks over any cash, he says be checks to see whether that plan provides for enough capital to survive if things go 'a little bit

at most of the time his investme ave gone more than a little bit right. With my own company, as founder, I earned 850 times my original invest-ment. And even with the other compaies I have invested in, I usually aim for 10 to 15 times my investment," Pisco explains. On a few occasions, though, he

nitts, "I've lost everything." Finding potential deals is on pro for these angels. The deals find him, Piscope says. Most come through business ociates or former employees, and set turn out to be of little interest, be

Put how do less well-connected entre encurs find an angel? Thanks to several matchmaking organizations, eful courtship of conital and mpanies goes on with or without the old-boy network. Betty Kadis is interim director of the Technology Capital Network - the oldest such group - that operates under the auspic es of the MIT Enterprise Forum in Care

bridge, Mass.

Kadis says a shift by venture cap firms toward higger deals has left a gap that angels are eager to fill. However, unlike venture firms, most angels are comfortable whiting five to 10 years for payback, she says

Angels may be taking on more imtance in helping start-ups now that established venture capital firms have set their sights on larger deals, suggested a recent article in Venture Capital Journal in New York

And while figures on the scale of angel investing are far from reliable - because angels are so adept at avoiding the imelight - as many as 250,000 individual arigels may be responsible for up to \$10 billion to \$20 billion in investments annually. That is several times the value of investments by traditional ver

Patience may be the final requ for successful angel investing. Angel Bob McCray recalls that one investor in his firm had to wait 20 years to get a payback. However, the payback was \$12 million on an initial investment of \$5,000. McCray says he tries to remem-ber that as he works with small conton nics, but be still prods them a bit. Companies that manage to become profitab in a shorter time - say one or two years - are allowed to pay him back at a much lower rate of return. "I like to structure things so the entrepres will still have a chance of making lots of money for himself," McCray says

Early ing freehings writer in Franklin, Mag-

The Week in Stocks



Gateway 2000 branches out

nt quarterly sales of PCs show a 12% increase over the same quarter a year ago, according to a report from Dataquest in San Jose, Calif. And Gateway 2000, Inc. (Nasdaq:GATE) is one of the leaders of the pack.

Gateway's PC shipments rose 48% over the same quarter last year. Since January, Gateway has tried to change its image from a single-market, single-product company to a worldwide mar-keter of varied PC devices. Analysts have approved.

Although Gateway's direct-sales approach has served it well in the past, the North Sioux City, S.D., firm is branching out. In the past year. It has expanded into markets in Europe and Asia. It introduced the Solo 2100 line of notebook PCs and rolled out Gateway Destination, a large high-priced PC/television.

This surge into new markets pleased analysis. "We're very

bullish on Gateway, and we think the Destination product shows true lanovation," says Megan Robertson, a market ana-lyst at Smith Barney Shearson, Inc. in New York. Robertson says Gateway's direct-marketing model lets the company control inventory more precisely and offer better pricing. She ex-pects the stock to rise to 850 in the next 12 months.

Gateway's ventures into foreign markets will be very beneficial, says Wendy Abramowitz, an analyst at Argus Research Corp. in New York. "They have such good administrative systems that as they continue to expand internationally, their already-strong revenues will grow even more." Abramowitz says she expects Gateway's stock to rise to about \$50 within the next year. - Stewart Deck



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in Sterling, Va. Rmon shipmen should double this year to \$744 mill

lion, even though usage appears to remain light. said Brian Burbs, an analyse at International Data Corp. in Fra-

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Performance is another concern. "Rmon comes at a price in CPU cycles and memory," said Barry Stanton, a software engineer at Advanced Micro Devices. Inc. in Sunmyale, Calif.

Stanton said he prefers to use stand-alone Rmon probes to track critical segments rather than embedded modules. So do

administrators at Chevron Information Technology Co. in San Ramon, Calif. Turning on Rmon can slow some internetwork gear, which then slows the flow

of business traffic they said Even worse, Rmon can get turned off just when you need it most - as utilization gets high," said Darrell Epos, comm tions engineer at Chevron. That is because Rmon is a low-pric process when emb

ne hubs, he said A third factor is the majority of organizations lack enough network rus to go

At Baxter Health-Pare Corp. in Deerhubs contain Rmon, but we haven't

turned it on because there's nobody available on staff to watch the reports," said Steve Tindall. project manager for LANs and infrastructure. Like protocol analyzers, many

Rmon tools at unused until they. are needed for troubleshopt said Lou Strinberg, president of NetOps Corp., a network consultancy in New Fairfield, Conn. Users won't leave Rm turned on to track network performance until it gets better integrated with their daily network

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Cisco, 3Com improve 'net links

The tidal wave of companies and

remote users sorking lateract access is forcing bub and router wedoes to deliver offerings that improve links to the laternet. 3Cosp Corp. and Cisco Systems. Inc. will announce this week prod acts that case laternet access and

conserve a limited resource — internet Protocol (IP) addresses. With 3Com's OfficeConnect Internet Gateway, information eraicms managers can let 50 overs on a Novell, Inc. IPX NetWare LAN share one IP address. And it con-

verts IPX traffic to IP so NetWare users don't need \$100 to \$300 IP software on their PCs. This eliminates the waste of addresses on infrequent Internet users, and it shields the NetWare server from backers

"I'd work very well for our small offices, which have Net Ware LANs, though most of the rest of the company is using IP: explained Bill Rischell, corporate networking strategist at R. R. Donnelley & Soos, a major print

Jeff Fritz, a telecom neer at the University of West Verginia in Morgantown, served "Anytime you can run fewer prutocel stacks on a PC, you save mon ey, memory and processor pow er," he said. "IPX-to-IP guirway products like this will be very pro-

alar with IPX shoos. Cloce's actions

For its part, sources say, Cinco will announce this week an IP address conservation and admi tration capability called Dyna Host Control Protocol (DHCP)

for at least one of its laters Before DHCP network admini trators manually assigned a per-manent IP address to every user. Now administrators can declor

DHCP to manage a pool of available IP addresses - akin to a fleet of restal cars - and automotically lease the addresses to end users as preeded

Once a wide-area network transmission is complete, DHCF automatically frees up the IP ad ress for the next user And 3Com this week will be-

ing vendor to avoid steep pe minute Integrated Services Digi-tal Network (ISDN) usage charges by using channels only when they are really needed.

Today, devices at both ends of an ISDN line can't commo cate with each other intellily, and as a result, often call up more B channels than are actually

This capability, called Band-width Allocation Control Protocol, will be supported in 3Com's pext software upgrade for its ISDN

routers and in remote access serv-ers, which are available now. "This capability is an absol requirement for us because it's too costly [with today's schemes] to keep multiple B channels up long, said Duane Rochelle, an in-

formation technology engineer in the network design and telecomunications group at Entergy Serrices, Inc., a Gretna, La., power

Devise of Internet service providers that focus on conmers. See page 63.

con Graphics, Inc. "NT boxes are going "It is becoming pretty evident that these NT workstations formed a separate workstation divini to be a real legion of duom for low-er boxes are capable of handling resource densive applications that used to require a

firm based in Chicago.

CONTINUED FROM PAGE 1

Inc. in Hampton, N.H. These new systems cost about \$5,000. which is less than half the cost of a comparable Unix-based system. But Garden warns that the new worksta-

tions have limits. Unix boxes still offer far more applications than Windows NT systems, especially in the high-end technical and engineering arena. For example, there still aren't enough applications to support power users who run multiple programs. And Pentium Pro systems can't match tational horsepower of some systems from Sun Microsystems, Inc. or Sili-

(Unix workstation) systems," said James Greene, an analyst at Summit Strategy Inc. in Boston. "But no one is going to be alyst at Technology Business Research, using NT to do their geographic imaging

But some shops are starting to bite With the kinds of capabilities these systems have, it is almost as if they are give them away," said Gary Davis, president of Animation House, Inc. in Evansville, Ind. Animation House, a heavy technical workstation shop, recently bought a Pentium Pro-based system for \$5,000 from

Gateway 2000, Inc. Davis estimates the sys-tem would have cost him more than four times as much from a Unix vendor. He uses the system for digital video and impring soEric Singleton, director of inform tems at AlbedSignal Technical Service Corp. in Columbia, Md. As a result, when it ones time for them to apprade their engi-tering workstations, they "will consider looking at these new offerings," be said.

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Follow the leader

HP is the first major vendor to formally an nounce a Pentium Pro personal worksta tion with these kinds of graphics capabili ties, but several other vendors are expected to follow suit before year's end. Dicital Equipment Corp., for instance, is prepping an early September release, and desig leader Compag Computer Corp. recently

Compaq is expected to amounce products in the fourth quarter

What is really going to set these evetems spars from other Intel-based workstations is the relatively sophisticated graphics copublishes they support, analysts said. HP.

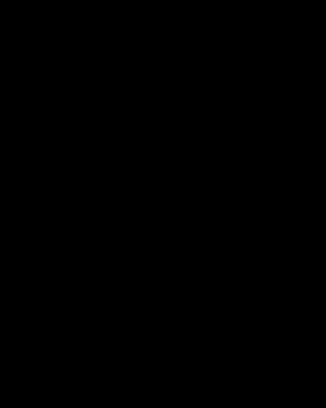
for instance, is porting its HP Visualize Unix workstation graphics technology to Windows NT, while Digital is, porting its PowerStorm graphics to NT. Others, such as Compaq, are forming alliances with workstation vendors to do the same thing.

As a result, these "NT-based worksto ions clearly can do the job for a lot of the pecring design work out there " said Rich Partridge, an analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y.

Senior editor Bob Francis contributed to

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Rmon

CONTINUED FROM PAGE 1

But fully implementing Rmon to track performance trends can belp administrators spot emerging problems before they impact vital business applications.

Vendors whine that end users call Rmon an absolute necessity ia their proposals, but six months to a year later, those buy-

turned it on to collect and correlate the information it can provide," said Tim Wilson, management analyst at Decisys, Inc., a network consultancy

in Sterling, Va. Rmon shipments should double this ear to \$744 million, even though

usage appears to remain light, said Brian Burba, an analyst at International Data Corn in Fra

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process when embedded in some hubs, he said. A third factor is the majority of or ganizationa lack "enough network

Top priority More than half of the gurua to go around." Howard 252 corporate buyers surveyed by Business said At Baxter Health-Research Group in Newton, Mass., dted care Corp. in Deerthe importance of hubs field. Ill., some

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Cisco, 3Com improve 'net links

By Bob Wallace

The tidal wave of companies and remote users seeking Internet access is forcing bub and router ven dors to deliver offerings that improve links to the internet. 3Com Corp. and Cisco Systems Inc. will announce this week prod-

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verts IPX traffic to IP so NetWare users don't need \$100 to \$300 IP software on their PCs. This eliminates the waste of addresses on infrequent Internet users, and it shields the NetWare

"It'd work very well for our small offices, which have Nes-Ware LANs, though most of the rest of the company is using IP," explained Bill Rochell, corporate networking strategist at R. R. Donnelley & Sons, a major printing firm based in Chicago.

Self Fritz a telecome agineer at the University of West Virginia in Morgantown, agreed. "Anytime you can run fewer protocul stacks on a PC, you save money, memory and processor power," he said. "IPX40-IP gateway products like this will be very popular with IPX shoos."

Cloco's actions For its part, sources say, Cisco, will announce this week-an IP address conservation and adminis-Host Control Protocol (DHCP)

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Beware of Internet service providers that focus on con-

sumers. See page 6's.

NT workstations

CONTINUED FROM PAGE I analyst at Technology Business Research,

Inc. in Hampton, N.H. These new systems cost about \$5,000, which is less than half the cost of a comparable Unix-based system But Garden warns that the new worksta-

tions have limits. Unix hours still offer for more applications than Windows NT sestems, especially in the high-end technical and engineering arena. For example, there still aren't enough applications to support power users who run multiple programs. And Pentium Pro systems can't match the computational borsepower of some ses tems from Sun Microsystems, Inc. or Silicon Graphics, Inc. "NT boxes are going to be a real legion of doom for low-end Unix workstation! systems," said larger Greene, an analyst at Summit Strategi Inc. in Boston. "But no one is going to be using NT to do their geographic imaging

But some shops are starting to bite. With the kinds of capabilities these systerms have, it is almost as if they are givi them away," said Gary Davis, president of Animation House, Inc. in Evansville, Ind.

Arimation House, a heavy, technical workstation shop, recently bought a Pen-

from Pro-based system for \$5,000 from Gateway 2000, Inc. Davis estimates the system would have cost him more than four times as much from a Unix fendor. He uses the system for digital video and imaging ap-

"It is becoming pretty evident that these boxes are espable of handling resourceintensive applications that used to require a higher-end workstation previously," said Eric Singleton, director of information systema at AlliedSignal Technical Service Corp. in Columbia, Md. As a result, when it comes time for them to upgrade their engineering workstations, they "will consider looking at these new offerings," he said.

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HP is the first major wendor to formally announce a Pentium Pro personal worksta tion with these kinds of graphics capabile ties, but several other wendors are expected to follow suit before year's end. Dieital Equipment Corp., for instance, is prepping an early September release, and desktos leader Compaq Computer Corp. recently formed a separate workstation division. Compaq is expected to announce products in the fourth quarter.

Whaf is really going to set these systems apart from other Intel-based workstations is the relatively sophisticated graphics capublishes they support, analysis said. HP. for instance, is porting its HP Visualize

Unix workstation graphics technology to Windows NT, while Digital is porting its PowerStorm graphics to NT. Others, such as Compaq, are forming alliances with workstation vendors to do the same thing. As a result; these "NT-based workstations clearly can do the job for a lot of the

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Princes policy and a Interruption Man, and advance quiring office. Need uses Capage himselfore fallowing agreement for the company of the com















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Hey, Microsoft: Can you spare a few execs?

f Microsoft really wants to help Apple, I've got an idea.

You may have heard that Microsoft has been secretive running a group in San Jose, Calif. It has hired people to build Macintosh Internet software and handed money to small developers who are willing to do the same. Microsoft's goal is reportedly to build Apole's market share. partly because if Apple doesn't survive, Microsoft could fall under the watchful gaze of the U.S. Department of Justice. Besides, Microsoft still has a nice business selling Office for the

But if Microsoft is really serious Gilbert F. Amelio and Chief Tech about helping Apple, I know how to Officer Ellen Hancock - Apple's dyaccomplish it: Send them Steve Ballmer. As Microsoft's executive vice president of sales and support and all-ground No. 2, Ballmer is just the person to turn Apple around. Ballimer is the gold standard of enthusiasm, could sell Macintoshes to even the most devoted Windows shop and is generally regarded as the sharpest marketer in the

Of course, he'd have to replace CEO

stamic due of cluelessacris - but their tenure is probably limited anyway.

Marco Landi, who was recently named Apple chief operating officer, is a keeper, though. He's bright, says the

right things, and seems to understand the business challenges, if not the prod-

uct challenges, Apple faces. To get the Apple product organization in line, another loaner executive is required, Microsoft Group Vice President

Myhrwold is at least as smart as Bill toob-like software for the PC righ he isn't the allarounder Gates has be-

I know the idea of Microsoft executives taking over Apple sounds crass, but Appic isn't capable of saving bell ammore And when iders try to help, Apple

is so buge and disorganised that no one ms able to act. Amelio's record so far consists of doing things any breathing son would do when confronted with sie's problems. Nothing more, nothing less. Hascock is an executive most

selv associated with the bad old days at IBM, hardly the reassurance the Apple community needs. It sounds funny that Microsoft would

want to save Apple, given the history of But the bettling was mostly Apple vs. coursey.com.or.visit.www.coursey.com.

Nathan Myhrvold, who runs the applications and content organization, ought to be able to bring some spark to has always made truckloads of mone ic's beleaguered R&D campus. selling Macintosh software and Macin-

This jon't the first tim Microsoft has tried to help Apple. - Microsoft Gro

Vice President Pete Hiegins says he and Bill Gates. tried to persuade Apple to license the Mac OS many years ago, but then-CEO John Sculley and his tech see, wanted no part of it

So, yes, my proposal is a bit radical. And although some people will raise legal questions, keeping Apple alive is in Microsoff's best interest - and

Coursey is an industry analyst, cons and editor is chief of "coursey.com," an online newsletter that covers personal contents ing, the laternet and communications. Get a

One year later, what was the fuss?

t was a year ago that Windows 95 was launched, and one wonders at this point what all the hoople was about. Desktop operating systems had been rendered a sec-

ondary technology by the time Windows 95 appeared. even if few of us recognized it at the time. The Internet was well on its way to becoming a mass movement, but many of us joined a late-night watch for the first sightings of Windows 95 like the beholders of Halley's comet.

If Microsoft were staging a Windows 96 launch this week, would it buy the London Times for a day or pay \$12 million for the privilege of playing The Rolling Stones' "Start Me Up?" That's not what as internet company does. Instead, it promises to supply regular upgrades as if each advance is a routi step instead of a ginnt leap forward.

The emergence of the internet and platform-neutral devices such as Netscape's Navigator and Sun's Java neutrake the impact of the operating system. If IBM and Apple want to keep

will get their users on to the 'net last as effectively as Microsoft. If the network is the computer, all users become equally empowered once they gain access to the laternet. It makes another cultural event like the launch of Windows 95

Speaking of empowerment, I've been impressed by the second chance that Apple is getting from the Internet, thanks to the popularity of the Macin took with graphic artists and World Wide Web page authors.

developing OS/2 and the Mac OS, they ple will have to move rapidly to improve

the transaction processing and database management capabilities of its opera-ing system and hardware. In addition to nerating content, Apple platforms rve as hosts for first-time Web pages. As traffic goes up and the number of

ngs being done on a site relate, Apple-biased Web ers are likely to find they need to move to. Wins NT or Unix Right now, I would say that Apple is getting bailed out by the popularity of the

Macintosh as a content ap is supplying the server hardware, too. nating just how widely the Mac

and its clones are used on the 'net is risky. Researchers at the University of that found 20% run Apple hardware.

An outfit called Netcraft Ltd. in Bath. ngland, pings Internet servers with its

Web crawler and tabulates the results. It would peg the figure at 15% to 17%, | ev.com.

sites. So what if Apple isn't the main car rier of electronic commerce? The Web has temporarily bailed out the company. in-the end, you have to ask wheth Apple can sustain its present strong po

toshes function ade-ntely as Web servers³ I don't think so, not on a high-transaction basis Can its Workgroup Serv ers pick up the slack? I doubt they can fit into the

corporate network well But no one anticipated Apple would reach such a position of strength There's no need to attribute it to bril liant strategy or adroit internet produc relopment. With focus and inno tion, however, Apple could con good luck into longer-term strength.

manterworks.com) August 26, 1996 COMPUTERWORLD

VIOVIES

The following observations about Hollywood's depiction of computers are bouncing around the Internet foriginal author unknown):

Word processors never display a cursor. You never have to use a space har when typing long sentences. All monitors display inch-bigh characters.



Government computers have either easy-to-understand graphical interfaces or incredibly powerful text shells that correctly understand and execute commands typed

You can get any information you want by typing "access all of the secret files" on any keyboard. Likewise, you can infect any computer by typing "upload virus."

SCREENS

ARE SO

All computers are connected. You can access information on the villain's desktop computer even if it's turned off.

Powerful computers beep whenever you press a key or the screen changes. Really advanced systems also enumer the sound of a dot-matrix.

whenever you given a key or the screen change. Really advanced systems also entire the sound of a dotentarize printer. THEMSELVES ONTO THE USER'S FACE USER'S FACE

a shower of sparks and an explosion that forces the user backward. Users typing away on a computer will turn it off without saving the data.

saving the data.

A hacker can get into the most sensitive computer in the world before intermission and guess the secret password in two tries.

Complex calculations and loading of huge amounts of data are accomplished in less than three arconds. Movie moderns transmit data at the speed of 26 bit/sec. No master what kind of computer disk it is, it's restable

by any system it's put into.

Letter from Vegas

ers and crackers attended the Defcon IV annual computer hackers conference in Las Vegas last mooth. Attendance was up 55% from last year.

Who are these people? What do they want? For one thing, hackers are getting older. The average age filantendees was 27, up from 20 last year. Females comprised 8% of attendees, up from 1% last year.

Hacker motivations ran the gamut. Some crackers said they jugt love the challenge, Others were electrosic penalenters who use a mouse like a spray-paint cip. tagging systems to show their prowess. And then there were the Unabornher traves who harbor

durker resentments. One of the scarier T-shirt slogues: "Practical Unix Terrorist." So what are their cent targets? With a prejudice against anothing that makes money for

dice against anything that makers money for Bill Gates (referred to as The Dil One), backers have begun serious work finding boles in Windows NT. Meanwhile, Jara was called worfully insecure and 'a good virus propagation mechanism."

The good news is that security experts say most backing could be prevented if companies

just used the security tools and techniques already available.

— Submitted by Towny Ward.

Digital Pathways (www.digpath.com)



Wanna get a shirt like this?

Inside Lines

Losing its religion . . .

Oracle pients in gree Wilsdoom NT 1 big wet his at an NT. Oracle allorate confirmed in the Territor of this week. Oracle hand exactly been ignoring Microsoft with or University 250 miles prior 157 attaches and went into Oracle 1 confirmed and the prior 157 attaches and went into Oracle 1 confirmed 150 miles of 150 miles 1 confirmed 150 miles of the prior 150 miles 150

... and sleeping with the enemy

Oracle also is malling the idea of getting into the data warehouse consulting business, including projects warehouse consulting business, including projects are also for a first would involve the R/3 software of applications rival S/2 expertine, a full jump into the SAP applicationsi consulting market into it the cards any time soon, said one conmarket into the cards any time soon, said one collecoficial. But data warehousing is a more likely scenario, even if R/3 is what will be surchousing.

Electronic tit for tat

The half-granul between Netsage and Microsoft now includes Small. First, Netsages vice predicts of engineering Rich Scholl test a message to Microsoft to only also had Netsage swarf receiving facely information from Microsoft about in operating systems. Last week, Paral Martin, anyone vice predictal Microsoft works of the Scholl than Microsoft "provided a lot of help." Then Microsoft "provided a lot of help." Then Microsoft are second between of not approving Microsoft in the care acrosoft between of not approving Microsoft in the property of the second of

Andersen to share the risk For many users, the very mention of Andersen Consult-

ing conjures up an image of legions of consultants who had no a time-and materials has for over that somethers about a surprise and materials has for over the source of a project. Now Anderson wants to change that, especially when it involves SAP RAT implementation projects. At this week is involves SAP RAT implementation projects. A this week is sometime of the source of the s

Unclogging the 'net A Washington-based outfit called Delta Tech has unveiled

software designed to reduce the size of large file transfers over the Internet, Update it compares original files with updated files and sends 'net users the difference.

Ascend plans product blast Ascend Communications, a leading provider of remote ac-

cess servers, has confirmed plans to announce its new high-end product, known as TNT in analyst circles, next week. TNT will be the first remote access server to supports 45M bit/sec. wide-area network line.

Last seek. New Jersey superiorstandes had to explain in the chand hearth of pricinet pair at 16-percel blacker 873 in breath in its computer system. During the summer, zone granulastes seaded towarties for college opticitation. But so one From Steir high school was available to retrieve the resent. So a computer coordinate recommended the term resent. So a computer coordinate recommended the term, who was sold to hypost the system's password protection. If you've had not seed from days or the seed of the reserve when the seed of the seed of the seed of the reserve about the seed of pairties, herefolium control 1008 1804-180.



